

08

618.53-05

J82
22



Library
of the
Academy of Medicine,
Toronto.

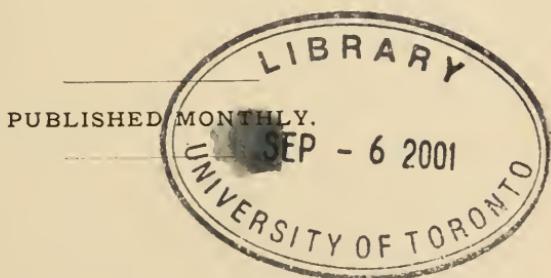
608

Presented by

Dr. S. J. Gibb Wishart.

VOL. XXII.—1907.

THE
JOURNAL OF LARYNGOLOGY
RHINOLOGY, AND OTOTOLOGY;
AN ANALYTICAL RECORD OF CURRENT LITERATURE
RELATING TO
THE THROAT, NOSE, AND EAR.



London:
ADLARD AND SON,
BARTHOLOMEW CLOSE.

ENTERED AT STATIONERS' HALL.

THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY.

Founded in 1887 by **MORELL MACKENZIE** and **NORRIS WOLFENDEN**.

EDITORS :

JOHN MACINTYRE, M.B., M.Ch., F.R.S.E.
DUNDAS GRANT, M.A., M.D., F.R.C.S.Eng.
ARTHUR SANDFORD, M.D., M.Ch.R.U.I.
W. MILLIGAN, M.D., M.Ch.

WITH THE CO-OPERATION OF

DRS. LAUZUN-BROWN (*London*), PRICE-BROWN (*Toronto*), CARTAZ (*Paris*),
BRYSON DELAVAN (*New York*), DODD (*Chicago*), DONELAN (*London*),
CLAYTON FOX (*London*), GRAY (*Glasgow*), GRAZZI (*Florence*), HICGUET (*Brussels*),
MIDDLEMASS HUNT (*Liverpool*), HUTCHISON (*Brighton*), JOAL (*Paris*), KELLY (*Glasgow*),
LACOARRET (*Toulouse*), LICHTWITZ (*Bordeaux*), LIEVEN (*Aix-la-Chapelle*),
DAN MCKENZIE (*London*), JOHN N. MACKENZIE (*Baltimore*), PROF. MASSEI (*Naples*),
McCALL (*Bournemouth*), MEYJES (*Amsterdam*), MYLES (*New York*),
HOLGER MYGIND (*Copenhagen*), CHICHELE NOURSE (*London*), PORTER (*St. Louis*),
KNOWLES RENSHAW (*Manchester*), SACHS (*Hamburg*), SAJOUS (*Philadelphia*),
SENDZIAK (*Warsaw*), LINDLEY SEWELL (*Manchester*), SOTA (*Seville*),
STCLAIR THOMSON (*London*), PURVES STEWART (*London*), HUNTER TOD (*London*),
WOODS (*Dublin*), WYLIE (*London*), MACLEOD YEARSLEY (*London*),
AND ZIEM (*Danzic*).

LIST OF PLATES.

	TO FACE PAGE
PLATE. TO ILLUSTRATE A PAPER BY DR. W. G. PORTER ON A FOLD SOMETIMES TO BE FOUND IN FRONT OF THE NASAL POSTERIOR OPENING.	17
PLATES. TO ILLUSTRATE A PAPER BY DR. J. MACKENZIE BOOTH ON AN AID IN THE TEACHING OF EAR AND THROAT CLASSES	95
PLATE. TO ILLUSTRATE MR. BETHAM ROBINSON'S CASE OF PAPILLO- MATA OF THE LARYNX	172
PLATES. TO ILLUSTRATE DR. JOBSON HORNE'S CASE OF LYMPHO- SARCOMA OF THE MEDIASTINUM	218
PLATE. TO ILLUSTRATE DR. JOBSON HORNE'S COMMUNICATION TO THE LARYNGOLOGICAL SOCIETY OF LONDON (January 4, 1907, Vol. xiv, p. 32)	245
PLATES. ILLUSTRATING MR. ARTHUR CHEATLE'S COMMUNICATION TO THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM (May 4, 1907: "Infantile Types of Mastoid")	256
PLATES. TO ILLUSTRATE A PAPER BY DR. JOBSON HORNE ON THE CHANNELS OF INFECTION IN TUBERCULOSIS OF THE THROAT, ETC.	292, 294, 298
PLATE. TO ILLUSTRATE DR. MORITZ'S CASE OF EPITHELIOMA OF THE LARYNX	244
PLATES. TO ILLUSTRATE DR. JOBSON HORNE'S CASES OF EPITHELIOMA OF THE LARYNX	354
PLATE. TO ILLUSTRATE A PAPER ON DIRECT LARYNGOSCOPY BY DR. ANDREW WYLIE	580
PLATES. TO ILLUSTRATE DR. CHEVALIER JACKSON'S PAPER ON DIRECT LARYNGOSCOPY	616

ILLUSTRATIONS IN TEXT.

	PAGE
A DIAGRAM OF THE INTERIOR OF THE LEFT HALF OF A LARYNX TO SHOW THE SITE REFERRED TO AS THE "VULNERABLE" SPOT, WHICH IS INDICATED BY A DOTTED LINE (Dr. Jobson Horne's case of Thoracic Lympho-sarcoma)	220
DIAGRAM ILLUSTRATING DRAINAGE OF CEREBRAL ABSCESS	244
PROFESSOR SCHRÖTTER'S NEW INSTRUMENT FOR DIRECT EXAMINA- TION OF THE CAVITIES OF THE BODY	395
PATERSON'S FORCEPS	354
CHEVALIER JACKSON'S DIAGRAMS	614, 615

THE
JOURNAL OF LARYNGOLOGY,
RHINOLOGY, AND OTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

RETROSPECT OF LARYNGOLOGY, 1906.

For some years past, although we had continued evidence of interest being taken in the affections of the larynx, the papers published in our journals, and the discussions in many societies upon affections connected with the nose, pharynx, and accessory cavities somewhat overshadowed the interest taken in the larynx. This year there would seem to have been a revival of interest in diseases of this region, and satisfactory work and advances have to be recorded.

The subject of etiology continues to attract a considerable amount of attention, and the question of the relationship between phlegmon and erysipelas is discussed by Dr. Pierce in this year's *Transactions of the American Laryngological Association*. Although Kuttner, Beckaler, and Ónodi have maintained that the causes are etiologically identical and the cases very often secondary to pharyngeal mischief, still, there is sufficient evidence to justify us separating them and considering laryngeal phlegmon as a clinical entity. The streptococci found in the two conditions are identical, according to Fränkel and others, but many bacteriologists are inclined to think that although morphologically alike there are different kinds of streptococci. The question is one of great interest because of the serious nature of the affections. In the same *Transactions* Dr. Mayer records an interesting case of scleroma of the larynx, and after a clinical description reference is made to the general subject. So much is Dr. Mayer influenced

by the infectious aspect that he advises every quarantine officer to look out for cases of long-standing hoarseness and to regard undoubted cases of rhino-scleroma as infectious, so that affected persons should be detained until an expert has pronounced upon the case.

The therapeutic treatment based upon bacteriological investigations is progressing; for not only have we evidence in the general literature of increasing confidence in the diagnostic value of bacteriological research in diphtheria, but many writers, such as Lewis and Wright, are pushing their experimental studies in the region of suppurations. These latter investigations have been carried out in the most careful spirit, and the patients' interests safeguarded by continual tests of their opsonic indices.

There is not much to record in the way of the study of the anatomy of the larynx, although Dr. Crosby Greene, in a paper mostly corroborative, again reviews the subject of the lymphatic drainage of the larynx in the *Transactions of the American Laryngological Association* this year. Nervous affections have received a fair amount of attention, and Dr. Gavello, as will be seen from an abstract in the February number of this Journal, points out the effects of dragging of the laryngeal nerves as distinguished from direct pressure. He quotes certain cases in which the disturbance was due to such conditions. The same writer treats of the laryngeal disturbances in syringomyelia, and quotes a case where "the cord was fixed in the cadaveric position." He says "that while from the researches of Grabower, Exner, and others, one is inclined to admit the absolute independence of the laryngeal motor innervation of the eleventh pair of nerves against the old theory of Claude Bernard, the latter tends to come into vogue again, being supported by the recent observations of van Gehuchten, who, by the study of the degenerations, has demonstrated the existence in the inferior laryngeal nerve of the number of fibres coming from the spinal accessory."

The question of tubercular laryngitis continues to attract a great amount of attention, and while the great anticipations of many writers have not been fully realised, there is evidence in a certain number of cases that surgical interference may give more comfort, and it may be extension of life, to the patient. This subject was discussed in an interesting way by Mr. Barwell at the London Laryngological Society, and a reference to his views will be found in the March number of last year.

Many interesting papers have been contributed on somewhat

less familiar subjects either from the clinical or pathological stand-points. Dr. Bosviel, at the Parisian Society of Laryngology, Otology, and Rhinology in April last, deals with the subject of perichondritis of the larynx; Dr. Renshaw, in the April number of this Journal, records a case of fibro-sarcoma of the thyro-hyoid membrane; and an interesting note by Dr. Jobson Horne will be found in the January number upon excrescences found in the interarytenoid space. Clinically it is always of interest to know whether in a given case of the kind we are dealing with one due to tubercle, syphilis, or merely of a simple nature, and the writer's reference to the difference between *pachydermia verrucosa simplex* and *pachydermia verrucosa tuberculosa* is very valuable.

Tumours of the larynx have received a considerable amount of attention during the past year. Dr. Wyatt Wingrave contributes a very valuable paper to the May number of this Journal upon the subject of innocent laryngeal growth. Fifty cases in all are referred to, and the careful macroscopic and microscopic analysis will prove of great value to all those studying the subject. In connection with papilloma of the larynx Thrasher,¹ in the *Transactions of the American Laryngological Association*, records a curious case in which he attributes the papilloma in the larynx to an injury by the inhalation of flames due to an explosion of gas.

The question of malignant disease has also received a considerable amount of attention during the year. Dr. Clarence C. Rice, in the *Transactions of the American Laryngological Association*, records the results so far obtained by the subcutaneous injections of pancreatic extract in a case of malignant disease of the larynx. He thinks the extract had a direct action upon the growth, and its administration was accompanied by certain well-marked local and constitutional symptoms. The experiment is being continued.

The comparative methods of the operations of thyrotomy and laryngectomy were thoroughly discussed in an able paper² by Dr. Chevalier Jackson at the Toronto meeting of the British Medical Association this year. His results have been exceedingly good, and in the discussion which followed he was deservedly complimented by many of the speakers. He regards thyrotomy as the best operation for early intrinsic disease, but he thinks that in serious cases, such as extrinsic malignant disease, or where the larynx is involved by extension, palliative treatment of tracheotomy is best, although in a selected number of cases laryngectomy is to

¹ Journ. of Laryngol., Rhinol., and Otol., vol. xxi, 1906, p. 380.

² *Ibid.*, p. 632.

be preferred. He records eight cases of laryngectomy, all of which were successful.

The interesting question of laryngeal and tracheal congenital stridor also formed one of the subjects of discussion¹ at the Toronto meeting this year, and Drs. Logan Turner and Henry Ashby contributed excellent papers upon the subject. Much important information will be derived from a reading of the discussion, although the result of it shows that the question of congenital malformation or acquired, as a result of a neurosis, is still an open one.

Much useful information is also to be found in the literature this year bearing upon the question of instrumentation. Dr. Heryng's work on inhalations is referred to in an interesting note in the *British Medical Journal* for November 24. Dr. Morton has described some means of great value in the instrument used for the actual extraction of foreign bodies when using Killian's apparatus. His descriptions of the instruments, which have received Professor Killian's approval, will be found in the January number of this journal. All students interested in Killian's work will find much valuable information in the work of Dr. Hugh Starck, also referred to in the *British Medical Journal* of November 24 last.

X RAYS.

The study of the X rays has long passed the experimental stage, and although as a rule they are more used by the surgeon than the physician, there can be no doubt they are being more carefully used in medicine than at any previous time.

It should be further stated that as far as the larynx is concerned no great evidence has been adduced to show that the therapeutic action has so far proved of great value in diseases of this organ. On the other hand, in lupus of the face involving the nostrils and in the same disease in the fauces or the tongue much more has been done. Rodent ulcer has yielded frequently in cases where the sides of the nostrils ran a risk of being destroyed. It may be here pointed out that in the same way radium has been successfully and conveniently applied within glass tubes at least to the anterior part of the nasal passages.

When we come to the question of diagnosis, however, there can be no doubt of the value of the X rays. It was demonstrated by Dr. Macintyre to the British Medical Association at Manchester in 1902,² that the epoch-making researches in the physical sciences

¹ Journ. of Laryngol., Rhinol., and Otol., vol. xxi, 1906, p. 441.

² Ibid., vol. xvii, 1902, p. 469.

have proved of the greatest value in the diagnosis and extraction of foreign bodies in the nose, throat, and chest. When the methods referred to are combined with the many advantages which have to be recorded in direct illumination by Killian and others, we, from a study of recent literature, realise what a great advance has taken place of late in the detection and removal of foreign bodies in the upper respiratory tract and oesophagus by means of instruments of precision. We have also evidence that in diverticulum of the oesophagus and obstruction the effects got by introducing fluids dense to the rays or metallic probes have proved of great service in photographing the parts. In addition, we find a considerable number of writers referring to the advantages of radiographs taken of probes in the frontal sinus.

OPSONINS.

There can be no doubt that this recent and interesting question is becoming one of great importance to all members of the medical profession. The work of Wright and Douglass is not only becoming more appreciated, but gradually we see the introduction of the test of the opsonic index being made a clinical one. In the June number¹ of our own Journal this year Sir A. E. Wright gives his experience in the treatment of malignant disease with preparations made from the *Micrococcus neoformans*, and the interest to students of our own speciality lies greatly in the instructive and educative charts published in the report. By this means we see the effect of the agent, step by step with the opsonic index of the patient, and no surgeon can over-estimate the consequence of such an attempt to give scientific accuracy, even though he be a sceptic of Doyen's treatment.

The followers of Metchnikoff attributed the phagocytic power of the leucocytes to their influence only. The recent investigations of Wright and Douglass showed that the question might be approached with advantage from a totally different standpoint. The theory which they have evolved, of requiring a something to be produced within the body which will act upon the microbe and make the work of the leucocytes possible, is one which has only been arrived at after a long series of experiments of the most delicate nature, and the scientific world has not been slow to evince its satisfaction nor to reward to the original workers much deserved praise. The therapeutic value of the opsonic index is at

¹ JOURN. OF LARYNGOL., RHINOL., AND OTOL., vol. xxi, 1906, p. 266.

present on trial, and notwithstanding the fact that we have no easy clinical test, and that the technique is distinctly difficult at present, still, future improvements will no doubt render it simpler, as in all other branches of medicine. An interesting experiment by Bulloch and Western showing that opsonins have a certain specificity is of the greatest value, because, if this be thoroughly established, it will prove that a patient may be normal in the quantity of opsonins, capable of fighting the invasion of the organisms of suppuration, and yet may not have the necessary resistance to tubercular invasion.

The fact that inoculation of a particular vaccine may at first reduce the opsonic power is a very important one because of this negative phase as Wright calls it. It is to be regretted that we have not a simple clinical means of detecting this negative phase because, naturally, if agents be introduced during this period, mischief may result, and this, to some extent, may explain some of the unfortunate phenomena which followed the early treatment of tuberculous cases of Koch's first attempts with tuberculin. After resting a sufficient time until the opsonic power has reached the higher level, treatment may begin again, and although other negative phases may occur, evidently there is a tendency for each successive one to become less severe than the former. It may be, therefore, that Wright's belief that inoculation with tuberculin T.R. may yield better results in the future provided care is taken to protect the patients by repeated, though troublesome, calculations of the tuberculo-opsonic index. It is becoming evident from a study of our literature that in cases of lupus, tubercle, and other affections in different organs those in charge of the cases deem it advisable to safeguard the patients in this way, and it is to be hoped that more records will be found in the year to come of the use of this new index in the treatment of these affections as well as malignant disease of the larynx and upper respiratory tract.

RETROSPECT OF RHINOLOGY, 1906.

THE enthusiasm which marked the introduction of the subcutaneous injection of paraffin for the correction of certain nasal deformities has somewhat abated. The results, cosmetic and otherwise, have not always come up to anticipation, hence the recoil of the pendulum. In saying this it must not be considered that the method is one to be wholly condemned. On the contrary, that it

has a useful rôle in nasal surgery will be admitted by all progressive rhinologists. The lapse of time since the introduction of the method has, however, clearly demonstrated that results good at the time of operation are not always permanent, and that it is advisable to bear in mind certain definite risks. Recently the injection of cold paraffin has been somewhat extensively employed in place of paraffin with melting points of 110° F. and upwards. In the treatment of atrophic rhinitis (*ozaena*) the submucous injection of paraffin has been employed, and is held to be a useful adjunct. By building up the atrophied turbinals the tendency to crust-formation appears to be diminished, whilst the power of blowing the nose appears to be materially increased. The submucous injection of paraffin has also been used for the purpose of building up the interior of the nasal passages following extensive operations upon the nasal accessory sinuses, more especially upon the ethmoidal labyrinth.

The vexed question as to the exact etiology of nasal polypi still remains unsettled. Dr. Lambert Lack, in his recent work "Diseases of the Nose and its Accessory Sinuses" maintains the view originally advanced by Woakes, that the growth of polypi is the result of an osteitis of the underlying ethmoid bone. Dr. Eugene Yonge, on the other hand, in a monograph entitled "Polypus of the Nose" endeavours to establish the following proposition: "that polypi are oedematous hypertrophies of the nasal mucous membrane, the indirect result of certain mechanical changes in the glands."

Although a great mass of evidence is brought forward by both authors in favour of their own particular theory, we venture to think that at the moment no one of the many theories advocated as being the essential etiological factor can be accepted without reservation.

An interesting observation is made by Killian in reference to the origin of mucous polypi of the choanæ; he believes that these polypi (often partly cystic) spring from the antral mucosa, make their way through the ostium maxillare into the nasal fossa, and passing in the direction of least resistance, appear in the rhinopharynx.

The surgery of the nasal accessory sinuses fills up many pages of the rhinological literature published during the past year. Although no very original innovations are to be found, the views and experiences of various operators are clarified, and several details in technique of a useful nature are to be found. A growing

tendency is evident to treat such cases, so far as is possible, *per vias naturales*. Although sympathising with this view, it must be borne in mind that but few really genuinely chronic cases have been recorded where permanent cure has followed simple lavage and the injection of remedial agents. That an effort should be made to operate intra-nasally is unquestionably most praiseworthy, and possibly, as technique and armamentarium improve still further, may meet with greater success in the future than appears at present to be the case.

The necessity for extensive operations upon the nasal accessory sinuses must depend upon the amount of discomfort the patient suffers from and upon the risk to life from such complications as intra-cranial suppuration, septicæmia, and the like. So far statistics show that intra-cranial sepsis following accessory sinus suppuration is comparatively rare. A very clear and concise description of the cerebral and ophthalmic complications following sphenoidal sinusitis is given by Dr. StClair Thomson in the *British Medical Journal* of September 29, 1906.

No doubt the exact cause of suppurative meningitis, suppurative encephalitis, and other septic intra-cranial lesions is frequently missed partly owing to the paucity of *post-mortem* examinations and partly also to the want of a thorough examination of the accessory cavities *intra vitam et post mortem*. Taking everything into consideration, however, the tendency to intra-cranial suppuration following nasal accessory sinus disease is not very great, and we venture to think that the relative position of the various sinuses and of their ostia permitting at least fair drainage into the nasal cavities has much to do with its relative infrequency. We venture also to think that a fair deduction is that the line of rhinological progress—so far as the treatment of suppurative disease of the accessory sinuses is concerned—should lie in the cultivation of methods of intra-nasal procedure. Unfortunately, many of the external operations in vogue, whilst undoubtedly relieving symptoms, cannot by any means be described as really curative. A cautious conservatism would appear to be in no way prejudicial to the patient's interests.

Treatment by means of packing, retention of drainage-tubes, and the like is rapidly being discarded in favour of sewing up wounds made at the time of operation, and subsequently employing (when pathological products have been cleared out) lavage by means of suitably constructed cannulae. More and more attention is also being directed to the importance of clearing out all diseased

cells in the ethmoidal labyrinth in cases of antral, frontal, and sphenoidal suppuration.

In reference to the surgery of the nasal accessory sinuses, one of the most interesting and valuable papers of the year was read by Dr. C. G. Coakley at the Toronto meeting of the British Medical Association, upon "Skiagraphy as an Aid in the Diagnosis and Treatment of the Diseases of the Accessory Sinuses of the Nose."

In this paper the author demonstrated that there is no difficulty in securing a plate to show the presence or absence of the sinuses. Where the difficulty lies is in getting a plate to demonstrate the presence or absence of disease.

Practical experience here, as in other things, is of the utmost value, and the practised eye will be able to read what the eye uneducated in such matters fails entirely to appreciate. The author has demonstrated to his entire satisfaction that a cloudiness over the area occupied by the frontal sinus, and an indistinctness of the outlines of the cavity, indicate disease; also that the shadow is the combined result of a thickened mucosa and the presence of fluid in the sinus. Another very important point which he has demonstrated is that the presence of a dark, slightly curved horizontal area almost parallel with the upper border of the orbital arch indicates a backward orbital projection of the sinus.

These findings, we venture to say, will prove of great value, not only in clinching a diagnosis made upon clinical grounds, but also in assisting in determining the exact type of operation which it is desirable to perform in any given case. So far skiagraphy has not given any real assistance in the determination of ethmoidal or sphenoidal disease; but we may, perhaps, not be regarded as too optimistic in saying that a time will soon arrive when plates will be so perfectly produced as to materially assist in the elucidation of disease in these more deeply-seated sinuses.

The treatment of malignant growths springing from the interior of the nose is still far from satisfactory. In the December number of the Journal an interesting and instructive paper by Dr. Price-Brown, of Toronto, ably summarises the position, so far as the surgical treatment of nasal sarcomata is concerned. The plea made for a more extended and more thorough use of the electro-cautery knife is well worth considering, and in the light of the statistics given is worthy of an extended trial.

RETROSPECT OF OTOTOLOGY, 1906.¹

BY DUNDAS GRANT, M.D., F.R.C.S.ENG., AND CHICHELE NOURSE,
F.R.C.S.EDIN.

CONSIDERING the number of workers in the field of otology, one is not surprised at the amount of material accumulated during the year. Although the work done in the shape of clinical, anatomical, and pathological studies has been large, the actual advance in scientific knowledge has been small, and the past year has not been marked by any striking discovery.

The meeting of the British Medical Association at Toronto gave an opportunity to the otologists of the Eastern and the Western worlds to compare their views and modes of practice, of which they gladly availed themselves. It was to be regretted that on such an occasion the amount of time which could be devoted to otology was so limited. A subject of such importance might well have been accorded a separate section.

From our reports it will be seen that at least one very important otological question was discussed, namely the "Indications for Ligature of the Jugular Vein in Otitic Pyæmia." Mr. Hugh E. Jones (498) opened the discussion in a very liberal spirit, and referred with some approval to the views laid before the Otological Society by Dr. Dundas Grant regarding the desirability of avoiding the ligature in many cases. Dr. McKernon's experience (507) was in unqualified favour of a primary ligation of the jugular vein. Mr. Hugh Jones's conclusions will probably receive ultimate acceptance, but for the present the last word on the matter has not yet been said, and the discussion will well repay perusal.

At that meeting, *inter alia*, Dr. Gorman Bacon (469) discussed "Conservative Methods in the Treatment of Aural Diseases," and Dr. MacCuen Smith (457) read a paper upon "The Pathogenic Influence of Aural Lesions in Systemic Disease." The President of the Section, Dr. Dundas Grant, delivered an address on "Some Practical Problems in Otology and Rhinology" before the American Academy of Ophthalmology and Oto-rhinology (405). At the Otological Society of the United Kingdom an important discussion upon "Fixation of the Stapes" was introduced by Dr. Urban Pritchard (240), Dr. Thomas Barr (242), Mr. Richard Lake (357), and Dr. Albert Gray in papers containing matter of great value.

A short but thoughtful paper by Dr. William Milligan (280)

¹ The numbers in the text refer to pages in the Journ. of Laryngol., Rhinol., and Otol.

on "The Influence of Pregnancy and Parturition upon Certain Forms of Progressive Deafness" touched upon a delicate aspect of the matter both from the scientific and the social point of view as brought out in the subsequent discussion. He quoted Orr's and Rows' observation that lesions of the spinal cord could be produced by the ascent of toxins, or in some cases even of organisms, from peripheral foci of inflammation either of an acute or chronic nature, similar changes having also been demonstrated to take place in cranial nerves. Dr. Milligan considered that in the same way suppuration in the middle ear might give rise to ascending lesions in the eighth nerve. Such applications of general pathology to our special department are very desirable.

Dr. Knyvett Gordon's views (275) with regard to "Scarlatinal Otitis" have important bearings on practice. He holds that in it we have an infection of the whole tract from Eustachian tube to the mastoid cells, antrum, and tympanum, accompanied by a definite osteitis where that tract is bony, and not simply a catarrhal inflammation of the lining membrane of the tympanic cavity. He has repeatedly found pus and carious bone on the mastoid side, where there has been no otorrhoea during life, in cases of death from scarlatinal septicaemia. His experience has been chiefly acquired among hospital patients of the poorer class, but it must be recognised that in all classes there is some special virulence in the otitis arising in infectious fevers, whence Dr. Knyvett Gordon's leaning towards an early resort to the radical mastoid operation in these cases.

Mr. Whitehead's reports are always among the most valuable episodes of the otological year, and three of his "Cases of Cerebellar Abscess" (63) illustrate the frequency of the extension of the inflammation from the ear to the cerebellum through the area of bone on the posterior surface of the petrous bone internal to the sigmoid sinus and external to the posterior semicircular canal. The other routes of extension are the labyrinth and the lateral sinus. This observer's habit of looking facts in the face is shown by his severe analysis of "The Symptoms present in One hundred and thirty-five Fatal Cases of Temporal Bone Disease" (269), which deserves careful study.

The subject of "Ear Affections due to Exposure to Loud Noises and to Explosions" (48) was brought before the Otological Society by Mr. Cheatle. He referred to a most interesting experiment in the paracusis Willisii made by Dr. Barr, of Glasgow. This observer found that when he blocked up his ears with india-

rubber plugs in the midst of hammering noises he was able to hear people's voices better than when he took the plugs out. This goes to confirm the constant clinical observation that it is in the obstructive forms of deafness that paracusis is present. Mr. Cheatle could suggest no treatment apart from rest, but considered that the deafness did not increase if the patient ceased to be exposed to the noise.

We have so far referred to some of the most important communications of the year, and shall, as hitherto, give what is more or less a *catalogue raisonné* of the chief remaining ones. This mode of compilation may be objected to from the literary point of view, but if our readers will re-peruse the otological contributions in our volume for 1906, as marshalled in this retrospect, they will find, as the compilers have done, that they will be amply rewarded for the time so spent. The numbers given are those of the pages in the volume for 1906.

AURICLE.—The production of "Othaematoma in Swiss Wrestlers" is described by Dr. Valentin (401). The treatment of this condition by compression was the subject of a communication to the Belgian Society of Otology, Rhinology, and Laryngology, by Dr. Delstanche (435). Cases of Epithelioma of the Pinna are recorded by Dr. Secker Walker (348), Mr. Yearsley (137), and Dr. Dan MacKenzie (105 and 301). A case of "Cyst of the Auricle" is recorded by Dr. A. Wylie (23). An interesting case of "Angeioma" was shown by Dr. Hugh Jones (192) at the Otological Society, and a case of old-standing "Ulceration of the Lobule" by Mr. Stuart-Low (187) at the British Laryngological, Rhinological, and Otological Society.

EXTERNAL MEATUS.—At the Otological Society Dr. Bronner (99) read notes of a case of "Aspergillus Niger, with Severe Vertigo," and Mr. Lake (99) showed specimens and drawings of the same rather rare affection. Cases of "Stenosis of the Meatus" were shown by Dr. Kelson (99) and Dr. Lawrence (144), and a case of "Epithelioma of the External Meatus" by Dr. Secker Walker (347).

MEMBRANE AND OSSICLES.—A case of "Abnormality in Colour of the Membrana Tympani" (138) was shown by Mr. Yearsley, and also a specimen from a case of "Necrosis of the Malleus" (9).

CHRONIC NON-SUPPURATIVE DISEASES OF THE MIDDLE EAR.—Besides the important papers already referred to, Dr. Gray (56) records the "Pathological Conditions found *post mortem* in the

Case of a Person who was very Deaf." A case of "Defective Hearing from Childhood, in which great Improvement was Produced by Treatment," was shown by Dr. Secker Walker (342). Dr. W. S. Bryant (166) discusses "Obstruction of the Eustachian Tube and its Treatment." Cases of "Enlarged Eustachian Emissaries" were shown by Dr. Furniss Potter (149) and Dr. Stuart-Low (186).

ACUTE OTITIS MEDIA.—"Infective Arthritis, Complicating Otitis Media," is the title of a paper by Dr. Eagleton (167). A case of "Acute Suppuration, Complicated by Paralysis of the Abducens Nerve," is noted by Dr. Hastings (306) to the Belgian Society of Otology and Laryngology. Dr. Hennebert (433) contributed a study of "Labyrinthine Symptoms in the Course of Acute and Chronic Otitis." A case of "Acute Suppuration, with Prolonged Fever," is recorded by Dr. Mole (96), and a "Case which followed a Nasal Operation" by Dr. Neumann (225). Dr. Scheibe writes about the "Therapeutical Aspect of Acute Inflammations," with reference to their various etiology (307).

CHRONIC SUPPURATIVE OTITIS MEDIA.—This affection is regarded by Dr. Holmes (335) as "An Occasional Cause of Retro-pharyngeal Abscess in the Adult." At the Austrian Otological Society, Professor Urbantschitsch (223) showed a case in which by mistake the attic had been syringed with carbolic acid, with resulting cure.

FACIAL PARALYSIS.—Dr. Boulay (286) showed a case in which "Facial Paralysis" followed curetting of granulations and the application of solid silver nitrate. At the Austrian Otological Society, Dr. Alexander (226) showed a case in which it had followed the radical operation and removal of the labyrinth, and Dr. Neumann (225) a "Transitory Case after the Radical Operation in a Child." At the Laryngological Society of London a case of "Middle-ear Disease, with Facial Paralysis," and "Paralysis of the Velum and of the Left Recurrent Laryngeal" was shown by Dr. Paterson (230).

MASTOID DISEASES.—"Mastoiditis and Furunculosis" are contrasted by Dr. Delstanche (264). Dr. Henrici (401) publishes further observations on "Tuberculosis of the Mastoid in Childhood." A case of "Latent Mastoiditis" was shown by Dr. Neumann (225), a case of "Double Mastoiditis, Complicated by a Sub-occipital Abscess," was recorded by Dr. Hitz (211), and an account of "A Case Occurring without Otorrhœa" is published by Dr. Louis Bar (439).

MASTOID OPERATION.—Dr. Heine (402) suggests "Isoform in the

After-treatment" of the radical operation. At the Parisian Society of Laryngology, Otology, and Rhinology, Dr. Luc (120) showed "Two Cases of the Radical Operation, healed in Six Weeks." At the Otological Society of the United Kingdom, Dr. Kerr-Love (94) showed "Stereograms Displaying the Steps of the Radical Operation"; and at the British Laryngological, Rhinological, and Otological Association, Mr. Nourse (189) showed "Two Cases after Operation." At the Belgian Society, Dr. Jaumenne (396) recorded a curious instance in which the operation had been performed painlessly without artificial anaesthesia in a patient with hysterical anaesthesia of the region. "Antrotomy Under Local Anaesthesia" is dealt with by Dr. Neumann (402). Mr. Stuart-Low (20) showed two cases in which the "cholesteatomatous lining had been retained" in the operation for acute mastoiditis in chronic suppuration.

ANATOMY AND PHYSIOLOGY.—At the Austrian Otological Society Dr. Frey (291) delivered a discourse upon the anatomy of the temporal bone; Dr. Grosser (289) showed models of the human embryonic skull; and Dr. Barany (361) gave an interesting lecture on "The Theory of the Function of the Semicircular Canals." Dr. Gray (142), at the Otological Society, demonstrated the anatomy of the labyrinth of the mammalia, besides making other valuable communications on similar subjects which are alluded to elsewhere. At the same Society also Dr. Cameron and Dr. Milligan (278) contributed an important study on the mode of continuity of the fibres of the auditory nerve with the auditory sense epithelium and with the nuclei in the hind brain. Dr. Wittmaack (402) writes on the histo-pathological examination of the organ of hearing, and (364) on experimental degenerative neuritis of the auditory nerves. Dr. Shambaugh (166 and 364) has two papers in the *Archives of Otology* upon the blood-supply of the inner ear.

SURGICAL INSTRUMENTS AND THERAPEUTICAL PREPARATIONS.—Very little new that is of interest has appeared during the past year. Dr. Wingrave (108) has devised an "Aseptic Syringe"; Dr. d'Ajutolo (111) a simple "Aural Masseur"; and Dr. Pollak (226) has another simple appliance for the same purpose. Dr. Pollak (226) also suggests a "Method for Carrying and Keeping Aseptic Dressings" and small instruments. Dr. Bloch (166) advises the use of "Borate of Soda" in ear cases.

THE LABYRINTH.—Dr. Albert Gray (365) contributes observations on "The Labyrinth of Certain Animals," having devised a method of preparation which makes the examination easier than

before. He demonstrated preparations illustrating "Pathological Conditions found in the Human Labyrinth" (141). Such costly and time-robbing work in its application to the pathology of the human internal ear is of the highest value.

Dr. Shambaugh's contributions to the study of "The Blood-Supply of the Internal Ear" are well known, and the beautiful preparations he exhibited at the Toronto meeting were much appreciated (555).

The "Surgery of the Labyrinth" has received an impulse from the work of Dr. Milligan and Mr. Lake. The latter exhibited before the Otological Society (94) skulls showing the different stages of an operation for opening the vestibule. Dr. Bourguet (305) describes his own technique with a special guard to protect the facial nerve. Dr. Secker Walker (350), Professor Politzer (222), and Dr. Laurens (286) give contributions to the "Pathological Anatomy of Suppuration of the Labyrinth."

Ménière's "Symptom-Complex" was in a case of Dr. Ernest Urbantschitsch's (224) "Cured by a Gynaecological Operation." Dr. Limorata and Dr. Gavazzoni consider "Galvanism" (111) to give the best results.

The value of the tests for the "Hearing of the Highest Pitched Tones in the Diagnosis between Labyrinthine and Central Nerve-Deafness" is discussed by Dr. Dundas Grant (413). He also reviews the opinions current as to the effect of quinine on the auditory nerve (114) and its mode of action in aural vertigo (115).

DANGEROUS SEQUELÆ OF SUPPURATIVE OTITIS MEDIA MENINGITIS.—Dr. Alexander (227) and Dr. Crockett (211) report "Cases of Recovery from Meningitis," there being in the latter pus round the vessels of the brain when the dura was opened and in the former cloudy cerebro-spinal fluid (lumbar puncture) without bacteria. Dr. Knapp (306) describes a case as "Serous Meningitis," the fluid being, nevertheless, cloudy. Dr. Sloan narrates (166) the findings in a fatal case in which he dates the occurrence of meningitis from an examination with a probe.

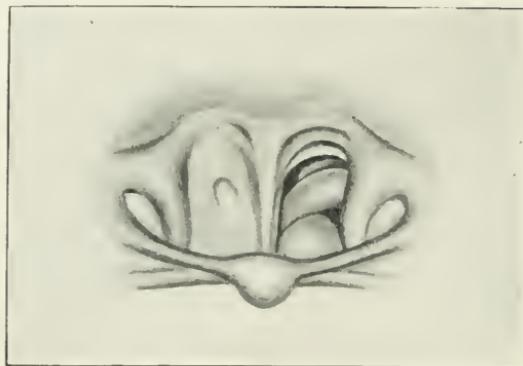
EXTRA-DURAL ABSCESS.—Cases are reported by Dr. Secker Walker (347) and Dr. Stoddart Barr (151), there being in the latter "Paralysis of the Sixth Nerve and Double Optic Neuritis." Recoveries took place.

CEREBRAL AND CEREBELLAR ABSCESS.—An abscess in the left lobe of the cerebellum in a case of Dr. Neumann's (289) was "complicated with one in the Right Temporo-Sphenoidal" convolution. Dr. Secker Walker (157) narrates a singular case of a soft-walled

"Cerebral Abscess due to Acute Necrosis" of the tegmen tympani and adjacent bone. Dr. Whitehead reports "Three Cases of Cerebellar Abscess" (63), one being combined with a temporo-sphenoidal abscess, also one of bilateral cerebral abscess (348). Dr. Tretrôp (391) insists on the necessity of operating early upon patients with acute purulent otitis media who present a dehiscence of the postero-superior wall of the meatus and mastoid pain.

THROMBO-PHLEBITIS OF LATERAL SINUS.—"Spontaneous Cure by Obliteration of the Sinus" was found (224) *post mortem* in a case of Dr. Alt's. Dr. Dundas Grant (148) showed "A Case which Recovered after Operation without Ligature," and advocated a conservative attitude towards the operation of ligature (429 and 510). He showed a case in which ligature was necessary (115), there being "Thrombo-phlebitis of the Jugular Bulb and Cerebellar Abscess," recovery resulting. Dr. Moure (431) approves of free drainage and never ligatures the jugular. The "Indications for Ligature of the Jugular Vein" formed the subject of an interesting discussion at the recent Toronto meeting of the British Medical Association. It was opened by Mr. Hugh E. Jones (498) and Dr. McKernon (507). Mr. Jones had previously narrated some interesting cases bearing on this point (193), which were discussed by the members of the Otological Society of the United Kingdom. The interest the question is now arousing is illustrated by a paper by Dr. Eagleton (in the *Archives of Otology*, vol. xxxv, No. 2) on "Circulatory Disturbances following Ligation of the Internal Jugular Vein in Sinus Thrombosis." These were evidenced by profuse bleeding from the mastoid wound and the immediate appearance of an optic neuritis of an intense type. Mr. Secker Walker contributes two cases, one of "Sigmoid Sinus Thrombosis with Partial Necrosis of Cochlea" (343), the other of "Septic Thrombo-phlebitis extending over nearly to the Middle Line" (351). In the former recovery took place without ligature, in the latter death followed from shock in spite of ligature. Dr. Alexander (226) narrates two cases of recovery, one with ligature and one without. A "Latent Sinus Thrombosis" occurred in a case of Dr. van den Wildenberg (436), in which pain was not relieved by the mastoid operation. Exploration of the sinus revealed the thrombosis.

FIG. 1.



Case of Congenital unilateral atresia of the choana.
(Note fold on unobstructed side.)

FIG. 2.



FIG. 3.



FIG. 2.—The posterior nasal opening in adult skull. Shows second fold.
(No. 35 in table.)

FIG. 3.—Posterior nasal openings in full time foetus, showing fold extending down septum and out to the middle turbinate body. (No. 8 in the table, foetal skulls.)

TO ILLUSTRATE A PAPER BY DR. W. G. PORTER, "ON A FOLD SOMETIMES TO BE FOUND IN FRONT OF THE POSTERIOR NASAL OPENING."

ON A FOLD SOMETIMES TO BE FOUND IN FRONT OF THE POSTERIOR NASAL OPENING.

By W. G. PORTER, M.B., B.Sc., F.R.C.S.ED.,

Surgeon to the Eye, Ear, and Throat Infirmary, Edinburgh; Clinical Tutor, Ear and Throat Department, Royal Infirmary, Edinburgh.

In a case of congenital unilateral atresia of the choana, which came under my observation in the poliklinik of Dr. Max Scheier, of Berlin, and of which an account has been published elsewhere (1), my attention was drawn to a fold which was present on the unobstructed side. The appearances (*vide* Fig. 1) as seen on posterior rhinoscopy may be here quoted: "On the roof immediately in front of the posterior nasal opening a narrow grey strip of tissue is visible, apparently an attempt at the formation of an occluding membrane on this side also. This felt hard when touched with a probe."

A fold resembling this was subsequently observed in a number of persons who were apparently healthy; no reference to this could be found in any literature to which access was obtained, with one possible exception (*vide infra*), and it therefore seemed fitting to make this the subject of a clinical and anatomical investigation.

On clinical examination the fold is to be found on an average in one person out of three, assuming one of three forms: (1) When most marked it extends on to the septum running parallel to and slightly in front of its posterior margin; it passes from the septum on to the roof, ceasing just above the posterior end of the middle turbinated body. (2) It may be well marked on the roof, passing out towards the middle turbinated body, but not extending on to the septum. (3) It may appear as a very narrow strip limited to the roof. The fold is characterised in every case by its greyish-white colour.

The anatomical part of the investigation was carried out partly in the anatomical department of the University of Berlin and partly in the anatomy rooms of the University of Edinburgh, in the former by the kind permission of Professor Waldeyer and in the latter by the courtesy of Professor Cunningham. I therefore take this opportunity of expressing to them my hearty thanks and indebtedness.

In all, forty-one skulls of adults were examined. In Berlin only the "parts" in the dissecting-rooms were inspected. At this stage of the dissection the skull is divided in the sagittal plane, the nasal septum being left on one half, which half alone was made use of;

this precaution and the fact that the "parts" are numbered obviated the risk of any part being noted more than once. In Edinburgh the specimens in Professor Cunningham's collection were examined, and as these are of course labelled and only a few dissecting-room "parts" were handled in the investigation, no possibility arose of any part being noted twice.

In the forty-one specimens under notice the fold was found in 17, or 41 per cent.; when present it is situated from 5 to 10 mm. in front of the posterior nasal opening. In its least marked form it is confined to the under surface of the body of the sphenoid, in its most marked forms it extends inwards half way or more down the septum, and outwards towards the posterior end of the middle turbinated body on to the inner aspect of the internal pterygoid plate (see Fig. 2). In the fold a ridge of bone can occasionally be felt. A number of macerated skulls were inspected, but no ridge was seen in this position in any one of them.

To prevent confusion it was found advisable soon after the investigation was commenced to note the relations of the fold, which marks the position of the choana itself. This was done in thirty cases. It extends from the posterior margin of the septum upwards and outwards on the under aspect of the body of the sphenoid and ends in one of three ways. Usually, in nineteen, it was found to blend with the anterior lip of the Eustachian cushion, in seven it reached the middle of the upper margin of the Eustachian cushion, while in four it was lost above that point.

In addition to the skulls of adults, eight skulls of full-time foetus were inspected; three of these showed a second fold (*vide* Fig. 3) similar to that described above.

Having thus established the existence of this fold, the question arises, What is its significance? We might naturally suppose that it is merely the result of some pathological process. This supposition is, however, negatived by the fact that the fold is frequently to be found on rhinoscopic examination of healthy people, and further by the fact that the appearances in the different specimens are so similar. These same facts exclude the possibility of this structure being due to *post-mortem* changes.

Now, when the fold was seen for the first time in conjunction with a unilateral atresia of the choana, the idea at once suggested itself that we had to deal here also with a partial occlusion of the choana, presumably of a nature similar to that on the completely obstructed side.

Table showing Results of Examinations of Forty-one Adult and Eight Foetal Skulls.

Skull No.	Second fold.	Distance in front of choana in mm.	Choanal fold.
1	1	8	Not examined
2	0	—	" "
3	0	—	" "
4	3	7	" 3 "
5	2	3	2
6	0	—	Not examined
7	0	—	" 2 "
8	0	—	Not examined
9	0	—	1
10	0	—	Not examined
11	2	10	1
12	1	6	2
13	0	—	Not examined
14	2	4	" "
15	0	—	" 3 "
16	1	8	Not examined
17	0	—	2
18	1	8	1
19	0	—	1
20	1	6	1
21	0	—	1
22	0	—	1
23	0	—	1
24	0	—	1
25	1	—	1
26	0	—	1
27	1	7	1
28	0	—	1
29	0	—	1
30	0	—	3
31	0	—	3
32	2	5	1
33	0	—	2
34	0	—	1
35	1	5	1
36 (Hd. I)	3	4	1
37 (B8)	0	—	1
38 (Hd. III)	0	—	1
39 (Hd. not numbered)	1	6	2
40 (organ sense series)	3	6	2
41	3	—	1
<i>Foetal Skulls.</i>			
1	0	—	3
2	2	2	3
3	0	—	3
4	0	—	1
5	0	—	1
6	2	—	Not examined
7	0	—	" — "
8	1	3	

Explanation of table.—In the second column the figure 1 denotes that the fold passed on to the septum and out to the middle turbinated body; the figure 2 denotes that the fold passed out to the middle turbinated body but not on to the septum; and the figure 3 means that the fold was restricted to the roof. In the fourth column the figure 1 means that the choanal fold blended with the anterior lip of the Eustachian cushion, the figure 2 that the fold joined the middle of the upper border of the Eustachian cushion, and the figure 3 that the fold was lost above this point. The first 32 skulls were examined in Berlin, the remainder in Edinburgh.

Hochstetter (2) has shown in a paper on the development of the primitive choana that the nasal cavity is formed by the union from behind forwards of the epithelial covering of the lateral and mesial nasal processes, and that the nasal cavities are separated from the mouth and pharynx from the earliest stages of their development. The floor of the nose is thickened by the ingrowth of mesoderm from both lateral nasal processes, while the most posterior part remains as an epithelial layer and is thinned out by the increase in size of the nasal cavity, thus forming the bucco-nasal membrane. This finally gives way and then the primitive choana is formed.

These observations have been confirmed by Tiemann (3) and Keibel (4).

Haag (5) was the first to suggest that a persistence of this bucco-nasal membrane might be the cause of the atresia of the choana; if this is so it is only to be expected that lesser degrees of the condition should be found. Now, it is well known that choanal atresia is sometimes incomplete, moreover the obstruction varies also in structure, consisting sometimes of bone and at other times of membrane, or, again, being formed partly of the one and partly of the other.

All these facts seem to support the view that this small fold has the same origin as congenital atresia of the choana, while the greater frequency of the appearance of the former may sufficiently be explained by the very minor degree of its development.

The only reference which I could find in any literature to a fold such as this was in a paper by Hopmann (6), who says that single folds are to be found rarely in the region of the upper or lower boundary of the choana, but that when existing they do not appear to be the result of an ulcerative process, but rather due to an irregularity in development of a congenital nature. Bergeat (7), however, referring to Hopmann's paper, found no such remarkable appearances.

The conclusions which, I think, may be drawn legitimately from this study are the following:

(1) That a fold is sometimes present on the roof of the nose slightly in front of the choana.

(2) That this fold is a vestigial structure, being the remains of what was once the bucco-nasal membrane, and, moreover, that a persistence of the whole of the bucco-nasal membrane results in the production of the condition known as congenital atresia of the choana.

REFERENCES.

- (1) PORTER.—*Edin. Med. Journ.*, February, 1906.
- (2) HOCHSTETTER.—*Verhand. d. Anat. Gesellschaft*, 1891.
- (3) TIEMANN.—“Über die Bildung der primitiven Choanen bei Säugethieren,” Wurzburg, 1896.
- (4) KEIBEL.—*Anatom. Anzeig.*, vol. viii, 1893.
- (5) HAAG.—*Archiv f. Laryngol. u. Rhinol.*, Bd. ix.
- (6) HOPMANN.—*Archiv f. Laryngol. u. Rhinol.*, Bd. iii.
- (7) BERGEAT.—*Archiv f. Laryngol. u. Rhinol.*, Bd. iv.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Twenty-eighth Ordinary Meeting, held at the Medical Society's Rooms, 11, Chandos Street, W., on Monday, December 3, 1906.

The President, A. E. CUMBERBATCH, F.R.C.S., in the Chair.

REPORT OF THE PATHOLOGICAL COMMITTEE.

The Pathological Committee of the Otological Society met on November 12, to examine and report on the following microscopical specimens:

- (1) Mr. YEARSLEY's “Ulcer of the Auricle,” *vide Transactions*, vol. vii, p. 17.
- (2) Mr. H. E. JONES' “Tumour of the Pinna,” *vide Transactions*, vol. vii, p. 50.

REPORT.

(1) The bulk of evidence is in favour of this being an epithelioma, but no mitoses are to be seen, which if present would confirm this opinion.

(2) Is an angioma, consisting of both blood- and lymph-vessels.

ARTHUR H. CHEATLE.

WYATT WINGRAVE.

C. H. FAGGE.

The following communications were made:

LANTERN DEMONSTRATION ON "THE DISTRIBUTION OF PIGMENT IN THE LABYRINTH OF VERTEBRATES.

BY ALBERT A. GRAY.

Slides were shown illustrating the distribution of pigment in mammalia, birds, reptiles, and amphibia.

The PRESIDENT thanked Dr. Gray for his demonstration, and asked him whether he had any theory as to the significance of that pigmentation.

Dr. GRAY, in reply, said he had thought a good deal about the matter, but had been unable to solve the problem to his satisfaction. He could not see any reason for supposing that pigment was necessary in the labyrinth. He believed it to be a remnant from the dura mater, which was found in the fish. It was found in fishes, and he could only suppose it had come in along with the dura mater in the formation of the labyrinth. In birds it had obviously done so, and he regarded it as really a vestigial remain. He did not know about its distribution in invertebrates.

MALIGNANT DISEASE OF THE EXTERNAL MEATUS.

BY R. LAKE AND W. H. BOWEN.

The patient, a woman, aged twenty-eight, had a growth scraped out of her left external meatus a few months before being seen in January, 1906. At that time there was a pink infiltration of the concha spreading half an inch out from the edge of the external meatus. The auricle was protruding and fixed and the meatus occluded.

The ear was dissected off by an incision commencing between the tragus and crest of the helix, following the external curve of the helix until the upper junction of the auricle was reached and there it was continued into the usual mastoid incision.

The growth was shelled out, the cartilage of the concha being severed well free of the growth. As a good deal of thickening remained, the patient was X rayed by Dr. Chisholme Williams, and the swelling then disappeared. There is still occasional suppuration down the small channel representing the external meatus.

Mr. BOWEN said that the specimen on histological examination proved to be carcinoma of the ceruminous glands. It showed acini, atypical in character, many containing several layers of cells and at places irregular columns of cells dipping down into the deeper layers of the connective tissue.

EXTENSIVE CHOLESTEATOMA OF THE MASTOID.

BY R. LAKE.

The patient, a deaf mute of some thirty years of age, was brought to hospital last February obviously very ill, but no history beyond the facts of a long-standing chronic suppuration of the left ear, and for a short time pain about the ear was to be elicited. There was pain on pressure over the left part of the mastoid process posteriorly. The patient refused emphatically to come in, although his state was obviously one of imminent danger, so he was dismissed.

The following week he reappeared with a history of several rigors. He was forthwith admitted and operated on immediately. The cholesteatomatous mass in the bottle was removed, and the sinus was apparently obliterated, but on stitching it up fluid blood was easily obtained from below, and after removal of some clot, also from above.

The patient rallied well, but rapidly became worse again, and died of septic pneumonia under forty-eight hours from the time of admission. The specimen in the jar shows the enormous absorption of the petrous. Only a shell of bone is left and the internal ear is also absorbed.

ACUTE SUPPURATIVE OTITIS MEDIA, WITH GRAVE CEREBRAL SYMPTOMS
—A COMPLICATION OF INFLUENZA.

BY HERBERT TILLEY.

F. G—, aged eighteen, was admitted to hospital on July 23, 1906, with the following history of her illness:

On June 4 she had an attack of influenza, and in the course of a few days this was complicated by acute inflammation in, and discharge from, the right ear. The general symptoms of influenza passed off in about a fortnight, but the ear symptoms continued, and the pain, which was severe, spread over the right temporal region to the top of the head. She had one rigor during the early days of her illness, but the exact date of this in relation to the ear symptoms cannot be ascertained. For fourteen days previous to admission the temperature rose every evening to between 103° and 104° F., and fell in the morning to about normal or subnormal. Her strength was failing and she was becoming weaker.

State on admission to hospital.—Patient is listless, very pale,

and has been suffering from headache, vomiting, and giddiness. Headache is more or less general, but is more severe at night in the right temporal region. Optic neuritis is well marked on the right side and some slight commencing neuritis on the left. Right pupil reacts sluggishly to light and is dilated. No ocular paralysis and no nystagmus. No weakness of the facial muscles.

A foetid discharge issues from the right ear, and the tympanic membrane is perforated in the upper posterior quadrant. Watch not heard on contact. No redness or oedema was present on the right mastoid, but this process was very painful on deep pressure; there was no pain on pressure on the right temporal region.

Grip of left hand considerably weaker than right. No ataxy. Sensation normal and limb reflexes good. Left lower oblique abdominal reflex is very hard to obtain, whilst the right was easily exhibited. Patient is very listless, but answers to questions with intelligence. Temperature on admission, 98° F.; pulse, 84; respiration, 20.

Operation.—The mastoid antrum was freely opened, and it contained pus. A small suppurating track led backwards to the upper end of the lateral sinus, the groove of which was exposed and found to be healthy, except for a small granular patch overlying the termination of the track already referred to. The roof of the tympanum was carefully explored, but it seemed quite healthy. The temporo-sphenoidal lobe was exposed through an opening $2\frac{1}{2}$ in. \times 1 in. The dura bnlged into the wound, and still more so did the brain when the dura was incised and turned upwards in the bone wound. The temporo-sphenoidal lobe was explored in five directions with a long bistoury, and no pus was found, but about two drachms of pale straw-coloured fluid escaped when that part of the lobe was punctured which lies above the roof of the tympanum.

The dura was replaced and the skin wounds entirely sutured except at the lower end of the mastoid incision, through which opening a drainage-tube was passed upwards to the bone wound over the temporo-sphenoidal lobe. The patient made a very speedy and uneventful recovery.

Presumably the case was one of serous meningitis, and might have recovered if nothing had been done. This seems a reasonable prognosis when it is noted that the temperature, pulse, and respiration had been practically normal for forty-eight hours preceding the operation. On the other hand, the clinical aspects of the case were not so favourable. The patient looked desperately

ill, and the combination of headache, sickness, and optic neuritis, ushered in by a rigor of influenzal origin, led me to decide upon operation.

Lumbar puncture might have given us much information, but the patient was sent in overnight as an urgency case. I operated next day at 2 o'clock, a day before leaving for my summer vacation.

INFLUENZAL OTITIS MEDIA WITH GRAVE SYMPTOMS ; OPERATION ; RECOVERY.

BY MACLEOD YEARSLEY.

Mrs. R——, aged forty-two, a patient upon whom I had performed the radical mastoid operation on the left ear in January, 1905. History of influenza six weeks before consultation ; this was accompanied by sudden otorrhagia on the right side, which woke her from her sleep. From that time there was slight foetid discharge, scanty in amount and variable in presence, with occasional pain and deafness. This was treated by syringing with perchloride solution. On July 7 the pain became worse, radiating down the side of the neck and to the occipital region. There was frontal headache and general vertigo. The patient complained that the left side was weak and numb. I first saw her on July 13. Her temperature was 97° F., pulse 90, distinctly cerebral in character. Respirations 28. No vomiting or nystagmus. No optic neuritis. Left grasp weak, no ataxy, sensation good, reflexes of lower limbs good. Cerebration good. Hearing for acommeter *nil*. The right membrane was bulging in its superior-posterior quadrant, there was slight foetid discharge, and there was tenderness over the mastoid on deep pressure.

As the patient showed that pinched, anxious look that so often goes with serious acute mastoid trouble, I decided to operate at once, and at 2 p.m. explored the right antrum. There was no pus but several foci of carious bone were found and scraped. On exposing the sinus, the walls were found healthy and the contained blood was fluid. By removal of the antro-tympanic roof the dura mater was exposed and found to be bulging and not pulsating. On incision a little straw-coloured fluid escaped. Exploration of the temporo-sphenoidal lobe yielded nothing. The wound in the dura was closed, the mastoid wound was packed and partly sutured. Immediate improvement took place and the patient made an uneventful and uninterrupted recovery. The hearing on October 1 for the acommeter was 10 feet.

Dr. KERR LOVE said the readers of the two communications were to be congratulated on the recovery of their patients. But both made the significant remark that the brain was opened without result, and both added that the patient might have got well without operation—meaning, presumably, without opening the brain, because the mastoid operation seemed to have been necessary in both cases. In Dr. Tilley's case it was interesting to note that rigor occurred, and that the author thought the rigor had no relation to the condition. It seemed important to decide whether in such a case one should operate on the sinus or merely expose the sinus. He (Dr. Love) thought the indications in both those cases were for laying bare the sinns, which in both were found healthy, clearing out the mastoid, and awaiting the result. Both authors seemed to indicate that they would not open the brain in a similar case in the future.

Dr. W. MILLIGAN said both cases exemplified well-marked phenomena in influenza—namely the acute pia arachnoid injection which took place in that disease. He very much doubted whether either case would have got better if it had not been operated upon. He believed the opening of the cranial cavity was the salvation of both the cases. Though no gross pathological change was found, he understood that in both patients there was an increase of intra-cranial pressure, and in Dr. Tilley's case there seemed little doubt that oedema of the brain was present with distension of the lateral ventricles. He thought the mere fact that a radical mastoid operation was done, and that a considerable amount of blood was drawn from the neighbourhood of the lesion was the reason the patient recovered. He believed that in influenza one of the chief factors which had to be dealt with clinically was that severe congestion of the pia arachnoid, and he believed that was the reason headache was so severe in influenza. Had Dr. Tilley done lumbar puncture in the first instance and drawn off cerebro-spinal fluid under tension, he probably would not have opened the intra-cranial cavity. That would have satisfied him at the moment that there was serous meningitis. He noted that, for various reasons, Dr. Tilley had been unable to do this, but it was an excellent thing to do in doubtful intra-cranial disease, afterwards examining the fluid both microscopically and bacteriologically.

Mr. C. H. FAGGE said he could call to mind at least three cases of influenzal otitis with meningeal symptoms similar to those just recorded. He proposed only to mention one, which was closely allied to Dr. Tilley's case. The patient was a boy of fourteen,

who was really ill with optic neuritis and paralysis of the external rectus of the same side. He carried out what he believed to be the correct procedure—namely the performance of a complete mastoid operation, exposing the dura in the middle and posterior fossæ, and finding there was no disease of the external aspect of the dura mater in any relation to the tympanic or antral wall, he drained the cavity and left it. The case, which was probably one of serous meningitis, got perfectly well.

Mr. E. WEST asked whether there was any real evidence of the patients having had influenza, except history or tradition. Was any effort made to cultivate the organism?

Mr. RICHARD LAKE said many cases of serous meningitis had been recorded which apparently got well, whether one did lumbar puncture, or an exploratory operation on the dura mater, or whether nothing operative was done. He could not help thinking that many of those cases of so-called meningitis which got well under the influence of mercury must very likely have been of the same class as those just narrated. If one was able to recognise the fact that there was serous meningitis, he did not think that anything more than lumbar puncture would be indicated.

Dr. J. DONELAN said that lumbar puncture, if performed early, had a decided value in cases of meningeal infection, and this was the experience of most continental authorities. He had reported in the *British Medical Journal* last year a case of cerebro-spinal meningitis in which the fluid furnished the bacteriological proof, and in which immediate and permanent improvement had followed the operation. In Dr. Tilley's case there was obviously no opportunity for this. Last July he had a case in which the cerebral symptoms were very similar to those mentioned. The radical mastoid operation was performed and pus found in the antrum. The lateral sinus was extensively exposed and found healthy, so nothing more was done. The recovery was somewhat remarkable from the fact that the incision healed completely by first intention, and the patient, who had postponed marriage, was able to start on a honeymoon tour with an absolutely dry ear within four weeks of the operation. It was very difficult to place oneself in the position of other operators and to duly estimate their reasons, but he felt from the notes that had been read that in these cases they were entirely justified in the present state of aseptic surgery in doing what they had done and removing any doubts they may have felt that nothing was left behind.

Dr. DUNDAS GRANT said he could support what had been said with regard to lumbar puncture, especially from a prognostic point

of view. He had two cases under his care with meningitic symptoms. Both had strabismus, both had chronic suppuration. Lumbar puncture in one resulted in the withdrawal of quite clear fluid, though under considerable pressure. The fluid from the other deposited a precipitate in the test-tube like iodoform in appearance. In the first case he found no pus in the antrum, but there was a considerable quantity in the groove for the lateral sinus. That was evacuated, the wound closed, and the patient got well. In the other case, in which the thecal fluid had a yellow deposit, he explored the brain, but found no pus. There was enormous bulging, and when the patient died it was found that meningitis had extended from the internal auditory meatus. Lumbar puncture helped in the prognosis, and it was doubtful whether, in view of the data in the second one, there ought to have been any operation at all. In any event he thought that what the authors had done was perfectly right, namely operating without delay for the exploration of the groove over the lateral sinus, and, at all events, trephining to find out whether there was extra-dural suppuration. Both produced such extreme symptoms, and were so essentially curable, that to omit to search was not excusable. Perhaps lumbar puncture might have relieved the pressure to the extent required.

Mr. HERBERT TILLY, in reply, said he could not be positive it was an influenzal case, but in the doctor's letter which came to him—the patient came as an emergency one—influenza was said to be in the neighbourhood, and the patient had suffered for a fortnight from fever and general pains about her body. No cultivation was made of the material from the mastoid. If he had the same sort of case again, he might be content with a smaller operation; but the girl was extremely ill at the time of operation: there were sordes on her teeth, and there was optic neuritis and other symptoms mentioned. When he had entered the antrum and found comparatively little there, he felt prompted to go further. The lesson one learned from such cases was that, at least, they should be drained through the mastoid. If he had made any mistake it was to have drained too extensively, but perhaps it was preferable to do that than to leave the case imperfectly drained and thus run the risk of losing the patient.

Mr. YEARSLEY, in reply, said he could only give the same answer as Dr. Tilley had given. The history given to him by the general practitioner was that it was a case of influenza. No cultivations were taken from the carious foci. If he had another similar case, he would certainly perform lumbar puncture. But as the patient

was so ill, and as he did not find sufficient in the antrum to account for the symptoms, he was constrained to go further. When he found that the dura mater showed signs of intra-cranial pressure, and that fluid came out when he opened it, he felt that he was on the right track.

A CASE OF AN ABNORMALLY SHORT EXTERNAL AUDITORY CANAL.

BY L. A. LAWRENCE.

The PRESIDENT said he looked at the case, but he did not detect much difference between the length of the patient's meatus and that of an ordinary one, though perhaps on one side it was a little shorter than on the other. Possibly this was an optical delusion, due to the prominence of the upper edge of the annulus tympanicus.

A CASE OF SEPTIC MENINGITIS SECONDARY TO SUPPURATIVE LABYRINTHITIS.

BY W. MILLIGAN.

The patient, a married woman, aged thirty-six, was admitted to hospital complaining of severe pain at the back of the head, nausea, and vertigo.

The history given was that the left ear had discharged for twenty years, following an attack of scarlet fever. Until within a fortnight of her admission to hospital there had been no pain in the head, but there had existed a continuous foetid discharge from the ear for years.

Objective examination revealed a large perforation in the posterior segment of the membrane and a tuft of soft, vascular bone-granulations springing from the upper and posterior portion of the inner tympanic wall. The affected ear was quite deaf, and the tuning-fork tests were lateralised to the sound ear. There was marked facial paralysis. The subjective symptoms were pain in the ear and at the back of the head, tinnitus, vertigo, and nausea. On one occasion before admission to hospital she had been violently sick, and vomited.

The temperature on admission was 102.4° F., the pulse 112, and the respirations 20.

There was a history also of one rigor previous to admission. There was no definite optic neuritis, although the margins of both

discs were somewhat ill-defined. There was marked horizontal nystagmus.

The symptoms and the various clinical indications pointed to implication of the left labyrinth. Under chloroform anaesthesia the usual radical mastoid operation was performed. Situated deeply within the substance of the petro-mastoid was a fairly large cholesteatoma. After its removal the following appearances were noted: facial nerve exposed for a considerable distance in its descending portion, complete disappearance of stapes with its foot-plate, horizontal and superior semicircular canals opened up, probably by erosion of the cholesteatoma, oozing of pus in a small amount from the posterior part of the vestibular erosion.

The very collapsed condition of the patient and the fact that there was now a fair-sized opening from which pus in the labyrinth might escape, made it advisable to complete the operation as rapidly as possible.

The day after the operation the patient appeared somewhat better, but the following day the temperature began to rise and the pain in the head to return.

A lumbar puncture was performed and cloudy fluid withdrawn. Four days after the operation the patient died. The following condition was found at the autopsy:

Skull cap rather adherent to membranes and separated with some difficulty. Dura congested. Pia-arachnoid veins distended. Cerebro-spinal fluid increased in amount and turbid, mostly collected about base of brain. Convolutions of brain slightly flattened, with opaque deposit of lymph lying in the sulci. Lying on and adherent to base of brain, especially about pons and medulla, mass of blood-clot. Brain-substance injected, ventricles filled with cerebro-spinal fluid; also in the lateral ventricle of left side large firm blood-clot, showing complete form of lateral ventricle with body and cornua, extending anteriorly through foramen of Monro into third ventricle where also was a small clot, and on into lateral ventricle of right side where a clot only in the body of this structure was found; clot adherent in parts to choroid plexus, from which the haemorrhage probably occurred.

No abscess in cerebrum or cerebellum. Structures entering internal auditory meatus swollen, sodden and greenish, but no pus found here.

Mr. FAGGE asked whether Dr. Milligan would present the specimen to the museum, and Dr. Milligan consented.

A CASE OF PRIMARY TUBERCULOSIS OF THE LEFT MASTOID PROCESS.
BY HUNTER TOD.

P. L—, aged four, a French boy, was admitted to hospital two months ago with a large swelling behind the left ear. There was a history of measles four months ago, followed by an abscess behind the left ear which burst. The swelling over the mastoid process had existed for six weeks. The boy is strong, chubby, and apparently very healthy. The following note was taken when the boy was admitted to the hospital :

“ Situated over the left mastoid is a rounded swelling about the size of an orange ; the auricle is pushed downwards and forwards, the swelling is elastic and of fairly uniform consistence, and gradually fades away into the surrounding tissue ; the skin over the swelling is normal, except for two ulcerated surfaces each the size of a penny ; the ulcerated surface is covered with exuberant granulations, and a small amount of yellowish discharge comes away from the surface. A probe can be passed through a small opening in the anterior ulcerated surface, but no bare bone can be felt ; the mass is apparently fixed to the bone in the region of the mastoid. No fluctuation can be made out, and there is no pulsation. There are no enlarged glands in the neck on either side. There is a purulent discharge from the left ear, and the external meatus is narrow owing to the upper posterior wall being pushed downwards and forwards ; some granulations can be seen, presumably coming from the middle ear.” This tumour was seen by several of my colleagues, who considered it might be either a sarcoma or necrosis of bone the result of measles.

On October 23 an exploratory incision was made over the swelling, which was found to consist of soft granulation-tissue which could be scraped away. A piece of tissue was removed from the edge of one of the ulcerated surfaces for microscopic examination. After exposing the bone it was found to be eroded over an area involving all the mastoid process and extending above into the temporal region ; there was no fistula leading into the antrum. A week later a complete post-aural operation was performed, and the tympanic cavity, the attic, the antrum, and the mastoid were found to be filled with soft and pale granulations and carious bone ; both the dura mater and the lateral sinus were exposed, and the mastoid removed down to its very tip. The wound was left open. The clinical appearance of the bone suggested tuberculous disease. The microscopic section, examined two or three days later, showed

presence of groups of round cells containing giant cells. Since the operation the wound has become rapidly filled with exuberant granulations, which have had to be curetted away. On November 27 the opsonic index for tubercle was taken, and found to be very low, namely 0.5.

Mr. FAGGE said he did not think Mr. Tod's case could be accepted as one of tuberculosis. Mr. Tod had not said whether he examined the material for tubercle bacilli, or whether any were found. It was well known that the presence of giant cells was not more diagnostic of tuberculosis than of several other chronic inflammations. Surely the absence of glandular enlargement, the very slight bone-destruction, and the absence of facial palsy in a young child were very much against the case being one of tubercle. He would have thought it was subacute or chronic infection of a septic character secondary to measles.

Dr. MILLIGAN said he was inclined to agree with Mr. Fagge. He did not think Mr. Tod had proved his case. Certainly one would not accept the mere presence of giant cells as diagnostic of tubercle. As Mr. Tod said, the disease had not cleared up. He (Dr. Milligan) suggested that a scraping be taken from the fringe of the disease, and an inoculation experiment be performed. He believed that to be the only true method of diagnosing such cases. He agreed with Mr. Fagge that the absence of facial paralysis and of glandular enlargement made it very unlikely that the condition was tubercular. He had seldom seen cases of tubercle in young children without glandular enlargement. It was very difficult to discuss the case thoroughly, so he hoped that Mr. Tod would do an inoculation experiment and let the Society know the result. The case raised the whole question of primary tuberculous disease of the mastoid as against secondary infection. It was desirable to have some further information about the present case, and he hoped that it would be forthcoming later on.

Mr. Tod, in reply, said that he was well aware that in about 40 per cent. of cases of tuberculosis of the middle ear, facial paralysis was met with, especially in children, and, as a rule, the cervical glands were enlarged. This, of course, was common knowledge. The reason why he brought this case before the Society was because it was an unusual one. The condition of the mastoid bone and the character of the granulations found on performing the complete post-aural operation seemed typical of tuberculous disease, and quite unlike that following septic disease of the bone. Further, if the case were not tuberculous in origin, it was an extraordinary

coincidence that not only the microscopic section showed giant cells, but also the opsonic index for tubercle was only 0·5. Mr. Tod said he would be pleased to do inoculation experiments and report the result to the Society.

A CASE OF EXCEPTIONALLY GOOD HEARING AFTER REMOVAL OF THE STAPES.

BY HUNTER TOD.

M. W—, aged twenty-seven, a domestic servant, was first seen at hospital in February, 1905. She complained that she had suffered from deafness and otorrhœa of both ears for many years, and recently from tinnitus in both ears and occasional attacks of pain behind the right ear, accompanied by headache extending up the right side of the head. There was a large perforation of the membrana tympani on both sides. On the right side the malleus could not be seen, and a fistula extended anteriorly into the attic, and in the posterior upper quadrant were some granulations. On the left side there was a large perforation occupying the anterior upper quadrant, with some granulations in front of the malleus. The drum was normal posteriorly, although adherent to the inner wall of the tympanic cavity. On August 10 ossiculectomy was performed on the left ear ; there was an uneventful recovery, the patient getting up on second day and feeling quite well. On August 31 a similar operation was performed on the right ear ; the malleus was not found, but the incus was removed in the ordinary way. On enetting away the granulations from the upper posterior quadrant, the stapes came away with them. (Mr. Tod showed the malleus and incus removed from the left side, and also the incus and stapes removed from the right.) There was some slight sickness after the operation and giddiness on sitting up, but the patient was up and walking about after the fifth day. The discharge from the left ear ceased within three weeks after operation. Unfortunately, the hearing was not tested before and after these operations ; the patient, however, is certain that the hearing was improved by them, although for a few days after the operation on the right ear she felt distinctly worse. On March 6, 1906, Mr. Tod performed the complete post-aural operation on the right side, as there were still attacks of pain in the head and some granulations to be seen in the region of the attic and aditus ; the stitches were removed from the post-aural wound on the tenth day, and patient

left the hospital on the twelfth day. The hearing is now excellent, as the following table will show :

	Right (stapes removed).	Left.
Watch . . . . .	. 4 in. . . . .	. 3 in.
Whispering { words "44" and "4" . . . . .	. heard 8-10 ft. . . . .	. heard 4-5 ft.
" "66" and "99" . . . . .	. " 25 ft. . . . .	. " 20-25 ft.
Words { sister	{ " " =	
sailor		
mistress		
" { robber	{ " 8-10 ft.	
" rug		
Conversation (ordinary voice) . . . . .	. 25 ft. . . . .	. 20-25 ft.
Tuning-forks { C ₄ air . . . . .	. normal . . . . .	. -6 secs.
C air . . . . .	. -more than 60 secs.	
bone . . . . .	. +2 secs.	
Rinne . . . . .	. -marked	

This case is of interest in that it shows how exceedingly good hearing may be, in spite of the removal of the stapes, which, of course, in this case was removed by accident, and not on purpose. One can only presume that as a result of suppuration in the middle ear the stapes had already become partly dislodged from the *fenestra ovalis*, and that thin scar-tissue had already closed its opening; otherwise it is difficult to account for the almost complete absence of symptoms of labyrinthine irritation which one would have expected to occur as an immediate consequence of the operation or for the extraordinary hearing power which now exists.

The PRESIDENT said it was a difficult physiological question as to how a person heard after removal of the stapes. It illustrated the fact that much had yet to be learned as to how sound was conducted to the internal ear.

CASE OF PERIODIC CENTRAL DEAFNESS; DEATH.

BY WATSON WILLIAMS.

On September 22 a lady, aged seventy, when apparently in excellent health and very active, suffered from supra-orbital and occipital headache, coming on suddenly, with a sense of faintness. Recovered, and on 27th went driving. Whilst returning she suddenly became apparently "stone deaf," but could hear again well before reaching home. The deafness returned once or twice the following day whilst packing. She took a railway journey and was deaf the greater part of the way, but had fairly recovered when she neared her journey's end. As several similar attacks occurred she was referred to Dr. Williams. She could only hear loud shouts close to her ears, and the tuning-fork was perceived by air-

and bone-conduction only if very loud. In all other respects she was in apparent good health and very active. She was sent back to her attendant and advised to keep her bed for a week. Becoming normal in all respects, she was allowed out for walks some days later, but on reaching home on October 14 she became unconscious. She recovered consciousness to some extent before death from cardiac and pulmonary conditions on October 19. No autopsy allowed.

Previous history.—Right hemiplegia associated with valvular heart disease six and a half years previously.

The PRESIDENT thanked Dr. Williams for the notes of the case, but the hour was too late to permit of a discussion on it.

Abstracts.

FAUCES.

Sprague, F. B.—*Observations in 1000 Adenoid Operations.* “Boston Med. and Surg. Journal,” October 11, 1906.

The author commences his paper with a story of a general practitioner who persuaded a parent that he was quite capable of removing adenoids. The deafness increasing after the operation, it was found “that both Eustachian cartilages had been torn out by the roots, leaving a permanent atresia of both Eustachian tubes.” Of the 1000 cases discussed, 503 were males and 497 females. The ages ranged from six months to thirty-seven years, and the largest number at one age was 64 cases at eight years. Dividing the age limit into periods of seven years each, the percentages showed 30 per cent., 50 per cent., and 20 per cent. for the first, second, and third seven years respectively. 90 per cent. were associated with faucial tonsillar hypertrophy.

Etiology, symptoms, and diagnosis are discussed. As regards anaesthesia all but two were operated upon under ether. Chloroform the author considers to be especially dangerous. Two cases were operated upon without anaesthetic. The earlier operations were performed in the sitting position, the later ones on the right side. As regards instruments, Dr. Sprague uses the O’Dwyer or Jansen gag and a palate protector, some form of forceps and a Gruber’s curette being employed to remove the growths. There were no cases of serious haemorrhage. Two cases became infected from the mother’s ozæna. Three cases developed acute otitic inflammation.

Macleod Yearsley.

EAR.

Le Beuf, L. G.—*A Case of Mutism in Typhoid.* “New Orleans Med. and Surg. Journ.,” November, 1906.

Girl, aged two and a half, Severe typhoid with meningitic symptoms and acute inflammation of all the cervical and submaxillary glands. Leucocyte count of 10,860. When consciousness returned the child could

not speak. Blood-count five days later 5000 to the c.c. No brain-pressure symptoms. Speech suddenly returned without any effort. The author suggests that the mutism may have been due to pressure from meningeal accumulation on the cortex or to a haemorrhage occurring during a convulsion. He thinks it was more probably hysterical in origin. In the discussion which followed the reading of this paper it was suggested that the mutism was due to temporary loss of memory of words, the result of high fever.

Macleod Yearsley.

THERAPEUTIC PREPARATIONS.

PARKE, DAVIS & Co., 111, Queen Victoria Street, London, E.C.

VEST POCKET INHALER.—This little instrument, made of vulcanite, is greatly appreciated by reason of its simplicity and its portability and from the fact that it can be used without observation when held in the fist. Menthol-pine inhalant is used as the inhaler, and has been found most efficient for hoarseness, catarrh, etc. The instrument is equally adapted for such medicaments as eucalyptus oil, terebene, etc., which are used to saturate absorbent material through which air is drawn. After use the end pieces can be screwed down so as to prevent escape of fluid or odour. The outfit is inexpensive, easily manipulated, and unbreakable.

ELIXIR HEROIN AND TERPIN HYDRATE.—This preparation presents the marked sedative properties of heroin and the stimulating action of terpin hydrate. Each fluid ounce represents: heroin $\frac{1}{6}$ grain, terpin hydrate 8 grains. It is widely prescribed in acute and chronic bronchitis, in pneumonia, pleurisy, asthma, laryngitis, and similar affections. It is a pleasant and effective expectorant, and exerts its soothing and toning influence without the drawbacks of opium or morphine. The dose is from 1 to 4 fluid drachms, swallowed slowly. It is supplied in bottles of 4, 8, 16, and 80 fluid ounces.

ADRENALIN AND EUCAINE TABLETS.—Each tablet contains $\frac{1}{20000}$ grain of adrenalin and $\frac{1}{6}$ grain of eucaine lactate, with $\frac{3}{5}$ grain of sodium chloride, sufficient to impart salinity to the solution. One tablet dissolved in 17 minims of sterile distilled water forms an analgesic and ischaemic agent for use in dental extractions and small operations, which will contain 1 per cent. of the eucaine salt and about 1 of adrenalin in 30,000 parts.

One tablet dissolved in 85 minims of sterile distilled water (approximately six tablets in one fluid ounce) forms a solution similar in strength to that used in operations at University College Hospital, as reported in the *Lancet*, July 25, 1903, and the *British Medical Journal*, December 24, 1904. The tablets are supplied in tubes of 25.

THERMOFUGE.—Thermofuge is a stiff paste which forms a substitute for poultices, compresses, and plasters, and is greatly superior in effectiveness, convenience, and cleanliness.

It is a compound of menthol, thymol, eucalyptus oil, ammonium iodide, etc., and provides an antiseptic emollient and derivative for external application for the reduction of internal and superficial inflammations of all kinds. Sore throat, laryngitis, pulmonary congestion, are effectively treated by a layer of Thermofuge (first made soft by heat) spread over the adjacent surface and covered with oiled silk. It is supplied in tins of $\frac{1}{4}$, $\frac{1}{2}$, 1, 5, and 10 lb.

THE
JOURNAL OF LARYNGOLOGY,
RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Allard and Son, Bartholomew Close, E.C."

MASTOID SURGERY.

THE frequency with which cases of suppurative middle-ear disease, both acute and chronic, come under the notice of the profession, the far-reaching effects of the septic processes thus originated, the danger to the ears as organs of special sense, and the actual risk to life itself make the successful treatment of this affection of the first importance. It is well known to those in charge of large aural clinics that many cases of acute middle-ear suppuration prove readily amenable to treatment of even the simplest kind; it is equally well known that a large percentage of cases, either as the result of an inherent virulence of the organism or organisms to which they owe their origin, or as the result of some anatomical peculiarity in the structure of the tympanic cavity and its adnexa, pass into a chronic condition. An entire absence of suitable treatment, or treatment alike unscientific and inadequate, is also responsible for the existence of much serious disease.

Aural surgeons have always striven to impress upon the minds of the profession at large the necessity of early and adequate treatment in cases of acute middle-ear suppuration, and have conclusively demonstrated how in the vast majority of cases chronicity may be thus avoided and the inestimable gift of good hearing power retained. For years past, on the Continent and in America, as well as in this country, the energies of progressive aural surgeons have been largely devoted to devising the best and the most effective means of arresting mastoido-tympanal suppura-

tion by improved methods of local treatment, by minor surgical operations, or by the more extensive and elaborate procedures now grouped under the heading of the radical mastoid or complete post-aural operation. In the gradual evolution of these various therapeutic measures two main considerations have ever been present in the minds of operating surgeons—firstly, the most efficient means of completely removing all foci of disease, and secondly, the best methods of preserving and, when possible, of improving the existing power of audition. That at times cases and circumstances arise where it is necessary for the sake of eradicating the existing bone-lesion to sacrifice the hearing power upon the affected side is unquestionable, but, as a rule, in the vast majority of cases it is possible by a carefully planned and executed operation to preserve, if not indeed to improve, the amount of hearing present previous to operation. The justification for operative procedures in such cases must depend upon three main points—(1) the risk to life; (2) the effects of a prolonged continuance of the morbid process upon the function of the auditory apparatus; and (3) the severity of the existing symptoms.

In aural surgery, as in other departments of the healing art, an honest endeavour must be made “to make the punishment fit the crime,” in other words, to make the operation performed commensurate with the gravity of the existing morbid lesion and the clinical symptoms.

In discussing the question of septic disease of the middle ear in its relation to the actual risk to life a great difficulty is encountered owing to the paucity of reliable statistics. This is not to be wondered at when the difficulty of securing *post-mortem* examinations is taken into account and of thereby ascertaining the precise relation of the morbid processes within the ear to the pathological lesion responsible for the fatal issue.

The effects of long-continued suppuration within the middle ear are invariably prejudicial to the preservation of good hearing power; hence the contention of a certain school of Otologists that every case of chronic suppurative middle-ear disease which has resisted regular treatment for a certain number of months (the time varies with different operators) should be submitted forthwith to operation. Symptoms of any real severity are, as a rule, absent in cases of uncomplicated chronic septic otitis media; hence one has to rely as indications for operation upon the duration, the extent, and the situation of the existing disease.

These last named factors, the extent and the situation of the

disease, have a most important bearing upon the exact type of operation which may be contemplated. It is frequently possible to gauge the extent of disease only after a free exposure and inspection of the mastoido-tympanal region. The relations of the tympanum, the antrum, and the adjoining mastoid cells are so intimate developmentally, anatomically, and pathologically that extension of septic infection is courted by mere continuity of tissue, if by no other factors. Hence it happens that objective indications of disease which prior to operation may appear local and of small extent are found to be deep-seated, extensive, and progressive. The knowledge of this fact has led most modern Otologists to advocate a free exposure of those areas the most prone to infection, an exposure secured by a post-aural operation, and the throwing open to inspection of the tympanum, the antrum, and the adjoining mastoid cells. Intra-meatal operations, except for purely minor pathological conditions, have been almost entirely discarded as unsurgical, inexact, and as a rule incomplete.

The great pioneers of modern mastoid surgery, Professors Schwartzé and Stacke, approach the infected field by different routes, the former by a direct opening into the mastoid antrum from the surface, the latter by removal of the outer attic wall and opening up of the aditus and antrum. A combination of these two methods, the Schwartzé-Stacke operation, is the procedure now usually adopted, a procedure which recognises the importance of a free opening into the whole danger-zone for inspection and adequate treatment. The question as to whether the membrana tympani and the ossicular chain are to be left *in situ* or removed must depend upon the extent of their pathological disintegration. The main charge laid at the door of the Schwartzé-Stacke operation is that an operation so radical and so extensive is inimical to the preservation of audition. That this charge is unfounded must be within the knowledge of most operators. Experience shows that good, if not improved, hearing follows the well-conducted radical operation in the great majority of cases. The contention, however, that it does not do so has lately led to the advocacy of other methods of procedure, notably to a method of operation advocated by Mr. Charles Heath.

At a meeting of the Otological Society of the United Kingdom, held on December 5, 1904, this author read a short paper (founded upon an experience of 400 operations) on "The Restoration of Hearing after the Removal of the Drum and Ossicles by a Modification of the Radical Mastoid Operation for Suppurative Ear

Disease," in which he claimed an improvement in hearing in 84 per cent. of his cases. Such results would tend to show that the removal of the drum and ossicles was certainly not detrimental to the preservation of hearing.

In the *Lancet* of August 11, 1906, this same author describes another operation "For the Cure of Chronic Suppuration of the Middle Ear without Removal of the Drum or Ossicles or the Loss of Hearing."

Unfortunately, no statistics are appended to the first paper, so that it is not possible to contrast the results—so far as the preservation of hearing is concerned—by these two methods of treatment so diametrically opposed to one another. This is unfortunate, as the comparison would have been interesting and instructive. So far, however, as it goes, the first communication is a distinct refutation of the charge that the removal of the membra *tympani* and the ossicular chain is followed by disastrous results so far as the function of audition is concerned.

At the Meetings of the British Laryngological, Rhinological, and Otological Association held on November 9, 1906, and January 4, 1907, of which the proceedings are reported in this number, Mr. Heath exhibited cases operated upon without removal of the drum and the ossicles. In a discussion which followed (p. 77) it was admitted by the author that no operation according to the particular method advocated had been performed by him prior to May, 1906. As the paper was published in August, 1906, a period of only three months had elapsed between the performance of the first operation and publication. Such a short space of time is obviously absolutely inadequate to test the results of any operation, and more especially of an operation done for the relief of chronic changes in the middle ear and its adnexa.

Time may prove that a modified operation, as advocated by Mr. Heath, is an incomplete surgical procedure, founded upon an inadequate appreciation at the time of the extent of the pathological changes met with in a particular case of chronic septic middle-ear disease with bone ulceration, and that the publication of the results within a few months of the operations is premature.

Obviously where there is slight and localised disease such as can be reached and eradicated by an operation of a modified Stacke character, and where the membrane and the ossicles are left intact, a good percentage of hearing power should be retained. The question, however, which must arise before the minds of aural surgeons is whether, in cases of such localised disease as are

curable by such a limited operation as described by Mr. Heath, local medication would not have effected the same result.

In cases of deep-seated disease where urgent symptoms are present, where there is every probability of the existence of an extensive bone-lesion menacing the life of the individual, the ordinary dictates of surgery would suggest a free exposure of the whole mastoido-tympanal tract. Where, on the other hand, the lesion is a chronic suppurative inflammation of the tympanic mucosa, with possibly the existence of some limited bone-lesion, and where, after a careful and prolonged course of antiseptic treatment, healing has not taken place, a modified Stacke operation such as carried out by Mr. Heath will, no doubt, succeed in curing the existing disease and in securing the retention of a very fair proportion of good and useful hearing power.

The main deduction which would appear to result from the progressive evolution of the mastoid operation is that the operator must secure a free opening into the heart of the diseased territory, and that all subsequent manipulations must be subservient to the pathological findings present, always remembering that the greatest service will be rendered to the patient, and the best results secured, by removal of as little tissue as is compatible with the pathological exigencies of the particular case.

NOTE ON ENDOTHELIOMATA AND OTHER TUMOURS OF THE NECK.¹

BY WYATT WINGRAVE, M.D.,
Pathologist to the Central London Throat Hospital.

DURING the past twelve months I have examined several growths removed from the cervical and parotid regions, and from the upper respiratory and digestive tracts, which belong to the group of tumours described as endotheliomata. They may be defined as neoplasms developed from and following the type of epithelioid or mesothelioid cells, such as are found lining blood- and lymph-vessels. When starting from the lining of perivascular lymph-spaces they are often termed "peritheliomata," but there is no essential difference in the character of their elements. Within the last few years these growths have received considerable attention

¹ Communicated to the British Laryngological, Rhinological, and Otological Association, January 4, 1907.

from pathologists, a fact which perhaps accounts for their more frequent recognition. Previously they were probably somewhat loosely termed "adeno-sarcomata," "atypical carcinoma," "mixed sarcomata." On carefully looking at my old preparations of doubtful type I must admit that several of them I should now unhesitatingly describe as endotheliomata.

They may originate either from the epithelioid lining of vascular channels, blood and lymphatic (endotheliomata), or that surrounding the vessels (peritheliomata). Cytologically there is no difference, but the spreading and grouping of the essential elements are somewhat different. They are also said to arise in vestigial structures, such as occur in connection with the branchial clefts on and in the intercarotid gland, probably from angioblastic elements.

In structure they are usually firmly encapsuled. The *stroma* is well marked, either fibrillated or homogeneous, forming spaces of varying size. Its cells, when present, are elongated, fusiform, and closely packed, sometimes encapsuled, giving the appearance of cartilage. The matrix contains mucigen or collagen.

The essential endothelial elements are cells which, although varying in size and shape, always possess the striking features characteristic of epithelioid or mesothelial cells—viz. large oval nuclei, having a fine, close, chromatin network, and staining faintly with haemalum. The cytoplasm is abundant and very finely granular or clear. They may be columnar, spheroidal, flattened, or fusiform. Very rarely they are laminated, forming "pearls" like ordinary squamous epithelioma, from which they are easily distinguished, and in some instances they may be calcified—features which occurred in two of the cases of probable vestigial origin.

It may be here remarked that epithelioid cells play a prominent rôle in the histology of tuberculosis, lupus, trachoma, and many chronic inflammatory processes, also in other neoplastic structures, such as lymphadenoma. From them one or more types of giant cells are derived. They are protean in the forms which they assume.

These endothelial elements spread as solid or hollow, cylindrical masses, branching, anastomosing, and fusing into masses of a distinctly alveolar type, to which they doubtless owe their old name—"adeno-sarcoma." Hetero-mitoses are not common, neither lymphocytosis, with wandering chromosomes—features so characteristic of epitheliomata. Occasionally they are the seat of cystic changes, and contain blood. Their rate of growth is generally

slow and irregular, but sometimes when disturbed they enlarge rapidly.

The stroma is sometimes composed of densely-packed fusiform cells, rarely lymphocytic in character, and branched and holding a mucoid matrix.

Of eighteen cases reported in the Pathological Society's "Transactions" for 1903 seven were males, nine were females, and two unspecified.

In fourteen occurring at the Central London Throat and Ear Hospital, six occurred in males, eight in females. There is therefore an excess of females.

With regard to situation the following were the sites recorded in the cases to which I have referred: parotid, 7; neck, 7; cheek, 4; palate, 3; nasal, 3; naso-pharynx, 2; lips, 2; maxillary antrum, 1; tongue, 1; larynx, 1; ear, 1; ovary, 1.

The age of the patients covers a somewhat wide range from the youngest, aged 7, to the oldest, aged 70; there being six from 7 to 17, six from 21 to 25, five from 31 to 37, two from 43 to 48, six from 52 to 55. So that only infancy and early childhood are apparently exempt.

Neither clinically nor histologically can endotheliomata be considered to possess very marked malignancy, for only one case of those which I have been privileged to investigate has proved fatal or recurred after removal, this being a male, aged fifty-six, under the care of Mr. Stuart-Low (No. 11).

Recurrence is very rare, a fact which is not surprising, since they are so sharply circumscribed by a thick capsule, and do not infect the lymphatic glands. Recurrence seems only to happen either when an outlying portion is overlooked or when the limitations are not met by operation. Further, with the exception of one case under the care of Dr. Andrew Wyllie, they are generally solitary. In this instance there were five small nodules apparently in connection with the vestigial carotid gland.

I have collected these few facts with the object of helping the study of this special neoplasm, not because of its comparative novelty, but chiefly on account of its frequent occurrence in regions which are included in our special work.

For a full and exhaustive description of endotheliomata—clinical and pathological—I would refer you to contributions by Johnson and Laurence, Seligmann, Rolleston and Grünbaum, etc., in the "Transactions" of the Pathological Society of London for 1903.

Appended is a list of cases which I have examined pathologically and reported.

LIST OF ENDOTHELIOMATA FROM THE PATHOLOGICAL MUSEUM OF THE
CENTRAL LONDON THROAT AND EAR HOSPITAL.

- (1) Endothelioma of maxillary sinus. Female aged fifteen. Duration two years. Dr. P. H. Abercrombie. July, 1905, complete removal. No recurrence. Calcification in patches. P.R. 810.
- (2) Growth from left middle turbinal. Male aged seventy. Several parts removed as polypi during October and November, 1905, by Dr. Jakins. Typical perithelioma mixed with myxœdematous tissue. No recurrence. P.R. 894.
- (3) Endothelioma of naso-pharynx. Male aged fifty. February, 1906. Mr. Nourse. No recurrence. P.R. 921.
- (4) Endothelioma from parotid region. Female aged twenty-five. Mr. Nourse. No recurrence (May, 1906). P.R. 998.
- (5) Endothelioma from parotid region. Female aged fifty-five. Mr. Stuart-Low. Duration seventeen years. June, 1906. No recurrence. P.R. 1005.
- (6) Endothelioma from supra-thyroid region. Male aged seven. Mr. Nourse, June, 1906. Probably connected with thyrohyoid duct. P.R. 1008.
- (7) Endothelioma from cervical region. Male aged fifty-nine. Mr. Nourse, July, 1906. Supposed to be enlarged gland. P.R. 1017.
- (8) Endothelioma from parotid region. Female aged fourteen. August, 1906. Dr. A. Wyllie. Diagnosed as enlarged glands. P.R. 1023.
- (9) Endothelioma of cervical gland. Female aged fifteen. Mr. Stuart-Low, August, 1906. Gland replaced with epitheloid cells having strong resemblance to lymphadenoma. P.R. 1024.
- (10) Endothelioma of carotid region. Female aged thirty-two. Dr. Andrew Wyllie, September, 1906. Multiple; lying on carotid sheath. Calcified pearls, diagnosed as glands. P.R. 1066.
- (11) Endothelioma of naso-pharynx. Male aged fifty-six. Mr. Stuart-Low, January, 1906. Recurrence. P.R. 921.
- (12) Perithelioma from dorsum of tongue. Female aged twenty-five, 1901. P.R. 438.
- (13) Endothelioma from nose. Male aged fifty-five. December, 1905. Mr. Nourse. P.R. 902.
- (14) Growth from ethmoid region. Female aged forty-six. Dr. Dundas Grant, 1905. Cells columnar. Endothelioma (?). P.R. 369.

SOCIETIES' PROCEEDINGS.

THE AUSTRIAN OTOLOGICAL SOCIETY.

Meeting held January 29, 1906.

PROFESSOR POLITZER in the Chair.

Dr. ERNST URBANTSCHITSCH described a *Case of Ménière's Symptom Complex in a Hereditary Deaf Mute.*

The patient was a girl aged twelve. Her father, mother, and several brothers were deaf and dumb from birth. From earliest childhood she had suffered from tinnitus, louder on the right side. For two years she had had vertigo of a severe type.

In January, 1905, she had a slight attack of parotitis, and a month later suddenly a typical Ménière's seizure attacked her. There was great increase of tinnitus and intense vertigo, followed by nausea and vomiting, with severe pain, deeply situated, in the ears. These attacks recurred at first three or four times monthly, later eight or nine times.

Attention was drawn to the following points: (1) The tinnitus was at its maximum at the commencement of the attack; (2) the vertigo was severe and rendered the patient unable to stand without support: it ceased when the patient lay down; (3) there was always nausea, but vomiting only occurred in about one third of the attacks; (4) the pain in the ears was generally at the end of the seizure; (5) there was no syncope; (6) immediately before the attack the patient felt cold and had an anxious expression; (7) before the onset there was frontal headache on the left side, which often outlasted the attack; (8) afterwards there was severe thirst. No disturbance of disposition was at any time noted. After the attack the patient suffered from diplopia. The condition of the eyes was as follows: hypermetropia and astigmatism on both sides. Vision: right, $\frac{6}{36}$; left, $\frac{6}{24}$. Retinitis pigmentosa, especially on the right side; nystagmus, horizontal and rotatory. On applying Romberg's test the eyeball moves downwards and to the left.

The tuning-fork, with air-conduction, was heard on the right, but not on the left. Galton's whistle could be heard on the left side.

The patient was on November 24, 1905, put under treatment by

electric current (constant current 0·1-0·2 milliampères, the poles on the tympanic membranes 10-20 min. persitting, twice weekly). There has been no severe attack since. On December 9 was the last attack with vomiting, and from then until January 6, 1906, only one slight attack, on December 17.

The disease is most extremely rare in so young a person; the parotitis was responsible for the onset of the first typical attack. Afterwards the hearing power in the left ear had diminished; this fact, taken in conjunction with the left-sided frontal headache and the inclination of the eyeball under Romberg's test towards the left, shows that cause of the attack arose on the left side.

Professor POLLAK remarked that the behaviour of the malady after the electric treatment was extremely interesting. He was of opinion that the vestibular apparatus was intact from birth.

Dr. BARANY said the character of the nystagmus pointed to the fact that the vestibule was excitable.

Professor POLITZER said that it was remarkable that a deaf mute should be able to differentiate tone pitch in both ears.

Dr. BARANY demonstrated the following cases: (1) a patient with severe rotatory nystagmus; in the right eye the principal movement was downwards, in the left upwards. The patient was blind in one eye and weak-sighted in the other. (2) A patient who had had a radical operation performed four years previously. Since then there had been lateral inclination of the head, vertigo, and nystagmus, with movement of the eyeball downwards.

Dr. H. NEUMANN showed a *Case with a Peculiar Otoscopic Appearance*, and put the question for discussion whether it was a polypus or a varix over the malleus.

Professor POLITZER said that it had the appearance of a polypus rich in blood-vessels, with an extravasation within it.

Professor POLITZER showed *An Anatomical Preparation of a Tympanic Membrane from an unknown Patient; the Preparation came from Grüber's collection; a histological examination had been made.*

Below the umbo there was a fibrous swelling about 4 mm. thick; for several sections the membrane could be traced running through the mass. The tumour was composed of parallel fascicles of fibrous tissue and spindle-celled connective tissue with no round-cell infiltration. The serial sections showed that the tumour sent

two processes, forwards and backwards, of similar histological character. A second similar tumour was situated in the posterior superior quadrant of the membrane, and appeared to arise from the periosteum of the meatus.

Dr. H. NEUMANN showed a pathological preparation.

The patient had chronic purulent otorrhœa and high temperature. Owing to his bad general condition he was immediately operated upon without an exact diagnosis being made. The sinus was apparently sound. In the following night and morning, rigors; diagnosis clear. Dr. Neumann decided to tie the jugular under local anaesthesia owing to the condition of the lungs and heart. Great escape of pus; indurated swelling and pressure; jugular thickened and hard. The ligature had to be applied behind the collar-bone. The case showed that it was possible to go almost to the *vena cava*. Patient died from a spreading abscess of the lung.

Dr. KAUFMANN said a patient had polypi removed in the Out-Patient Department. Afterwards severe headache commenced; locally nothing could be found. Seen on fourth day, patient had rigor; temperature 104° F.; severe general symptoms. On the following day at the operation a perisinous abscess was found, but in the sinus fluid blood; again rigor; in sinus still fluid blood; jugular tied fairly low down (here, also, no thrombosis). Four days later thrombosis of both cavernous sinuses commenced, which diagnosis was confirmed at the *post mortem*. The advisability of tying the jugular when there was fluid blood in the sinus seemed worthy of discussion.

Professor POLITZER remarked that if there was a daily rigor ligature was indicated. Whilst there is fluid blood in the sinus there might be a thrombus upon the walls of the vessel; it is therefore necessary to ligature the jugular, even if there is fluid blood.

Dr. KAUFMANN ligatured the jugular nine days after the first operation, and this caused the infection of a healthy vessel. The sinus was not opened after ligaturing.

Professor v. URBANTSCHITSCH said there was often a thrombus upon the wall of which one could not be certain.

Dr. NEUMANN said that he had demonstrated a similar case with obvious isolated thrombus upon the vessel wall. Ligature of the jugular without opening the sinus could only be injurious. The thrombus due to stasis would be infected by the thrombus on

the wall, and only by opening the sinus could an escape be made ; he had seen no ill effects from a wide opening of the sinus.

Professor POLITZER said that the rapid onset of the symptoms of thrombosis of the cavernous sinus showed that the disease was already too widespread and that cure was impossible.

Dr. F. ALT read a paper on *The Treatment of Suppuration of the Attic.*

It is generally known that balsam of Peru has been much used of late years in surgery for packing putrid wounds, in the after-treatment of purulent appendicitis, and in compound fractures, etc. The medicament is most interesting for its strong disinfecting power, its power of stimulating the formation of granulations, the way in which it soaks into crevices and prevents the formation of pus, with all the injurious sequelæ of purulent otitis. The value of treatment with balsam of Peru can be estimated by observing its action in cases of obstinate suppuration of the attic. Dr. Alt detailed a number of cases of attic suppuration which had been treated with the balsam. In many of the cases the malleus and part of the outer attic wall were removed. The balsam of Peru was applied on an anal probe covered with a small plug of wool. This was passed into the cavity and the attic wall carefully besmeared. At the first application some irritation was caused, which showed itself by the secretion of a clear fluid discharge, which ceased in a few hours. By introducing just a sufficient quantity for painting the walls a severe reaction was avoided. The application was made every second day, and between the applications the patient was instructed to carefully keep the ear dry. After ten to fourteen days the secretion was much reduced in quantity, and in four or five weeks the cavity was dry and covered with epidermis. It was obvious that these results could only be expected in localised attic suppuration when the antrum was not involved. Balsam of Peru had been tried in every kind of attic suppuration. In cases where there was only a perforation of Shrapnell's membrane and evidence of slight mischief the attic was first carefully syringed out with 1 per cent. lysol and 6 per cent. hydrogen peroxide, the balsam of Peru being afterwards applied as described. In cases of old putrid suppuration a wide opening into the attic was made by removing the anterior part of the attic wall and the ossicles, with the subsequent application of the balsam.

Dr. ERNST URBANTSCHITSCH said he had treated two cases of otorrhœa in this manner, but gave it up on account of the severe

irritation it caused. Lately he had tried insufflation of balsam of Peru with boric acid with good results.

Dr. H. NEUMANN said that applications which irritate were very injurious and could only be used when there was no affection of the labyrinth. Zeroni mentioned the possibility of the increase of a labyrinthine affection after an operation. He had seen a case in which a false drum had caused a latent circumscribed purulent affection of the labyrinth to become an acute diffuse affection.

Dr. ALT said that by careful dosing (two drops were sufficient to paint the entire attic) all irritation could be avoided. This method of treatment was for local suppuration of the attic only, when not complicated by disease of the labyrinth.

KNOWLES RENSHAW.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

One Hundred-and-ninth Ordinary Meeting, December 7, 1906.

J. B. BALL, M.D., *President, in the Chair.*

HENRY J. DAVIS, M.B. }
W. JOBSON HORNE, M.D. } Hon. Secretaries.

Present—32 members and 2 visitors.

The minutes of the previous meeting were read and confirmed.

The following gentlemen were elected as ordinary members:

GEORGE W. BADGEROW, M.B. Toronto.
CYRIL A. B. HORSFORD, F.R.C.S.

The following communications were made:

CYST IN THE FLOOR OF THE RIGHT NASAL PASSAGE.

Shown by the President, Dr. J. B. BALL. The patient is a woman aged fifty-two. There is a swelling in the anterior part of the floor of the right nasal passage, which is obviously a cyst. She thinks it has existed for about nine or ten years. Although it gives rise to slight deformity in the anterior naris, it causes no inconvenience, and she does not wish for any operative interference.

Dr. DAVIS said he remembered showing, five years ago, a woman who had a cyst on the same side. Each time it was punctured it refilled and expanded part of the inferior turbinate bone. The mucous glands had

very long canals in those parts, and he thought it was a retention-cyst of one of those glands. He thought that it occurred, as a rule, in women.

Mr. H. B. ROBINSON said he could contradict the statement that the condition occurred only in women. He had removed one from the same position in a man.

Dr. HERBERT TILLEY confirmed Mr. Robinson's statement that cysts on the floor of the nose sometimes occurred in men. He had treated such in a man where one of the incisor teeth was at fault. When that tooth had been removed the cyst ceased to refill.

Dr. LAMBERT LACK suggested that all such cysts were dental in origin.

Dr. STCLAIR THOMSON said he had one peridental cyst which was treated in the country first of all, where it was thought to lead into the antrum, but it washed through into the floor of the nose. He had had some previously, which he had treated from the gum, but was dissatisfied with them. A present case, which was doing better, he was treating by dissecting it from the gum and dealing with it from inside the nose at the same time. He agreed with Dr. Lack that they were nearly all peridental cysts.

CASE OF PARALYSIS OF THE RIGHT HALF OF THE TONGUE, THE RIGHT HALF OF THE PALATE, AND OF THE RIGHT HALF OF THE LARYNX (ABDUCTOR PARALYSIS), IN A CASE OF (?) SYPHILITIC PACHY-MENINGITIS.

Shown by Sir FELIX SEMON. The patient, a man aged forty-two, was admitted to the National Hospital for the Paralysed and Epileptic under the care of Dr. Ormerod on October 31, 1906. He has had gonorrhœa, but there is no definite history of syphilis. Two and a half years ago he rather suddenly lost power in his right leg, and has never quite recovered this. One year ago he had malaise, vomiting, and sudden loss of power in the left leg. He is able to walk, but both legs are weak and do not seem to have their proper feeling, particularly the left. Five months ago his voice became raucous, and has ever since remained so. He has some difficulty in passing water, and occasionally generalised headache.

His state on admission was as follows: Cerebration is very slow; smell dull, better left than right; taste dull on both sides; hearing very poor, left better than right. Vision: Right, old iridectomy from injury, some opacity of media. Left, $\frac{6}{6}$. No restriction of fields, rough test, left pupil small, reacts to stimuli through small range, slight double ptosis, no defect of ocular movements; diminution of sensation over right fifth, weakness of right motor fifth; weakness of right facial; paresis of right half of palate; right laryngeal abductor paralysis; voice high-pitched, somewhat hoarse; tongue protruded distinctly to the left side fuller than right; some difficulty in swallowing solids; slight weakness of right arm:

spasticity of both legs, diminution of sensation over the whole left half of the body; all deep reflexes exaggerated, double extensor response not constant on left side. (For these notes I am indebted to Dr. Wilson, our Senior Resident Medical Officer.)

From the above description it is obvious that there is a process of meningeal thickening at the base of the brain, implicating a number of cerebral nerves as they leave the cavity of the skull in the right middle and posterior fossæ. Amongst them there is the triad of symptoms—paralysis of one and the same half of the tongue, palate, and larynx described many years ago by Hughlings Jackson and Morell Mackenzie, Bernhardt, Stephen Mackenzie, Barlow, and other authors. Cases of this description are sufficiently rare to be individually recorded.

The patient has not improved under mercurial treatment, electricity, and massage during his stay in the hospital. During the past fortnight his articulation has become rapidly worse.

CASE OF NÆVUS OF THE PHARYNX.

Shown by Dr. DUNDAS GRANT. The patient, a man aged twenty, was first seen by the exhibitor on November 9, 1906, complaining of pain and fulness in the left side of the throat. There is an extensive nævoid growth involving the left half of the palate, fauces, and lateral aspect of the pharynx. Externally, behind and below the angle of the jaw, there is a fulness giving the "wormy" sensation of a vascular swelling. The condition is reported to have been present since birth but to have been getting larger of late, and the question arises as to the possibility of its eradication by means of electrolysis, galvano-cautery, or free excision preceded by ligature of the branches of the external carotid artery, if the latter proceeding is not rendered impossible by the outward extension of the nævoid growth.

Dr. F. W. BENNETT said that as the condition was only found by accident, and as it gave rise to no symptoms, he would leave it alone.

The PRESIDENT agreed with Dr. Bennett, and counselled leaving it alone.

Dr. FITZGERALD POWELL said he had two similar cases, one of them a nævus of the tongue and palate, which he showed at the Society, and it was generally thought they should be left alone. They had remained in the same condition, and there seemed to be no ill effects. He saw another case in a French boy, for whom he recommended some treatment; but his friends took him away in a panic, and went to Paris, where his tongue was slit up, one flap being turned above and the other below, and the nævus dissected out. The boy nearly bled to death, but his nævus was now as large as ever. He thought these cases were better left alone unless bleeding occurred.

Dr. GRANT said, in reply, that the opinions expressed coincided very much with his own, but he felt it his duty to ascertain whether more heroic measures would be suggested. The patient had had no haemorrhages, but if they were to set in, the complexion of the case might be altered. He thought the local application of the galvano-cautery would then be most likely to do good.

A CASE OF OZENA FOR DIAGNOSIS.

Shown by Dr. H. J. DAVIS. A lady, aged forty-three, had had ozæna for two months. There were present hypertrophic rhinitis and post-nasal discharge : transillumination gave a negative result.

The patient was the wife of a professional man, who had noticed the odour suddenly two months ago. She was now conscious of the odour herself, and said that a discharge trickled down the back of the throat. Pus was visible with a post-nasal mirror in the vault of the naso-pharynx, but the exhibitor was not sure that ulceration was not present : he would be glad of the opinion of members on the case as to diagnosis and advisability of operation.

Dr. HERBERT TILLEY said that in the post-nasal space there appeared to be the remains of an old adenoid, in the middle line, and on that mass were five or six small suppurating points, so that he took it to be a chronic abscess located in the post-nasal growth. The smell of the condition would be in keeping with that diagnosis. He had removed a suppurating adenoid from a patient aged thirty-five, and the wall of the abscess cavity was black. The patient had been seeking advice because of a very foul smell in the nose. This was always preceded by a headache, and the patient said that when something "burst in the middle of her head, and some stuff came away" the symptoms were relieved. When he broke into it on digital examination of the naso-pharynx the pus which escaped was of the foulest odour he had ever experienced. When he removed the adenoid he mopped out the post-nasal space with chloride of zinc, thirty grains to the ounce, but in spite of that and frequent douching she suffered from general septic intoxication, and came out in a rash resembling scarlet fever a few hours after the operation. Three days afterwards she had acute suppuration in the right antrum and exhibited a septic temperature, which lasted a week, and then the whole trouble passed off. He thought removal should be carried out in this case and the condition of the nasal passages investigated under an anæsthetic. Possibly at the same time the anterior end of the inferior turbinal on the right side could be removed, as it was very swollen. Information could be gleaned at the time of operation by looking at the deeper parts of the nose with a Killian's speculum. There might be a secretion of pus from the sphenoidal sinus, but from the patient's answers to questions he did not think this was the case ; it was a question that could not be excluded without proper and detailed examination.

Dr. DAVIS, in reply, said he thought the patient had more discharge running down the back of the throat than she would have from mere suppuration of adenoids. He believed she had sphenoidal sinus trouble, but he agreed that she had a pad of adenoids. When he first saw her it looked like a case of Tornwaldt's disease ; but that was very rare, and he had only seen it twice in his life, though but for the amount of discharge

he would have regarded it as a case of that disease. The friends were anxious to know what was best to be done, and he did not want to suggest an operation which would not cure her. He thought it would be best to give an anæsthetic and remove the growth first. He gave her a spray of hydrogen peroxide to both nostrils, which effervesced freely and removed the odour. He was grateful for the advice which had been offered.

A CASE OF LARYNGEAL NEOPLASM FOR DIAGNOSIS.

Shown by Dr. H. J. DAVIS. The patient, a man aged forty-four, was taken suddenly ill six weeks previously with stridor, retraction of ribs, slight dysphagia. The aperture of the larynx was almost occluded by infiltrated arytenoids. There were no physical signs in the chest.

The exhibitor said he had never seen a similar case before and he thought that it might be anything—syphilis, tubercular or malignant disease. The severity of the symptoms was unusual; stridor was now less marked; the patient was under treatment with inhalations and a mixture of 15 gr. of iodide of potassium and 1 drm. of Easton's syrup three times a day. He would be glad of the opinion of the Society on the case.

Dr. GRANT thought the œdema in the arytenoids was secondary to some tertiary syphilitic condition in the posterior part of the larynx.

Dr. JOBSON HORNE said he was only able to make a hurried examination of the case, but it was one which required careful investigation. The first thing to exclude was malignant disease and then tubercle. The question arose whether the stridor and shortness of breath were entirely attributable to the laryngeal condition, or whether there was a mass of glands in the thorax, causing pressure and dyspœa. An examination of the neck and thorax with the X rays, Dr. Horne thought, would be helpful in arriving at an exact diagnosis.

Mr. CHICHELE NOURSE said that besides the infiltration of the arytenoids, the ventricular bands were very much swollen. He agreed with the opinion expressed by Dr. Grant that it was probably a tertiary specific affection, and he thought there was some perichondritis.

Dr. STCLAIR THOMSON said that if tubercle had been excluded he agreed with Dr. Grant that it was most likely tertiary syphilitic. He had an exactly similar case in which the infiltration looked very œdematosus. He pressed the man to enter the hospital and have tracheotomy done, but he refused. The stridor got worse, and one day he was brought into the hospital in a great hurry. The house-surgeon did tracheotomy, but the man was dead before it was completed. He (Dr. Thomson) had the specimen. There was a pedunculated thickening which, to the touch, was very solid and fibrous. But in the mirror it, like the present case, had looked semi-translucent.

Sir FELIX SEMON did not think anyone could say, from mere laryngoscopic examination, what the nature of the condition was. Certainly there was perichondritis, with œdematosus infiltration of the mucous membrane, but whether it was tuberculous, malignant, or syphilitic was mere guesswork. Why should it be syphilitic? Was it a syphilitic ulcer?

Or were there other syphilitic phenomena? And tuberculosis had not at all been "excluded." Again, the man was forty-four, therefore he might have malignant disease of the œsophageal aspect of the larynx, concealed at present by the œdema over it. He would give iodide, and at the same time examine the expectoration for tubercle.

Mr. E. B. WAGGETT thought that in all cases where there was doubt as to the condition of the posterior aspect of the cricoid that part should be examined by inspection. It could be easily done by a method devised by Dr. von Eicken, and in vogue in Professor Killian's clinique, namely hooking forward the larynx with a very strong curved probe, the tip of which, covered with wool, was applied below the anterior commissure after a good cocaineising of the part. In that way information could be gained in this case as to the suspected presence of malignant ulceration of the posterior aspect of the cricoid.

Dr. DAVIS, in reply, agreed with Sir Felix Semon. A remark was made about excluding tuberculosis, but how was that to be done? There was no sputum to be examined. One could only judge by the clinical results. The case was a very rapid one. The man was taken suddenly ill, and when seen in the out-patient department he was thought to be suffocating. He was given some Friar's balsam to inhale and an injection of morphia, under which he got better. He had been treated with iodide of potassium. He had never yet seen the ventricular bands, and if they were visible now the man was better. The only case at all resembling it which he had seen was where the swelling was translucent. That was secondary syphilis. In the present case the parts were very red, and he had never seen a man *göt* bad so quickly or improve so rapidly. If it had been tuberculous he thought the man would have got worse under the iodide of potassium; that was his experience.

CASE OF MULTI-SINUSITIS.

Shown by Dr. STCLAIR THOMSON. Every cavity had been dealt with surgically except the right sphenoid. The opening into the left sphenoid was well seen, and also the complete clearance of the left fronto-ethmoidal cells. The Killian operation had been performed on each frontal sinus with removal of the entire roof of the orbit. In consequence of local foci of suppuration repeated operations on the fronto-ethmoidal cells were required, leaving scars on the forehead. Owing to local massage and the preservation of the Killian bridge hardly any disfigurement had resulted.

Dr. SCANES SPICER congratulated Dr. StClair Thomson on the excellent result of the left side. It was seldom one saw such a fine opening into the sphenoidal sinus and such complete quiescence after extensive interference. On the right side the tissues in connection with the adhesion looked to him congested, and he did not think the present satisfaction as to relief would be permanent, and that something more would have to be done for the patient before very long—*e. g.* division of the adhesion and submucous resection of septum. He did not think as things were there was sufficiently free drainage of the ethmoidal cavities, and he could distinctly see and feel small polypoid proliferations in the depths of the right nostril.

A LARYNGEAL CYST IN THE ARYTENO-PIGLOTTIDEAN FOLD.

Shown by Dr. G. C. CATHCART. The tumour was about the size of a filbert nut, and extended from the left arytaenoid along the ary-epiglottic fold, and projecting over the ventricular band on that side, it presented the appearances of a tense cyst. The case was exhibited to ascertain opinions as to treatment.

Sir FELIX SEMON said he had seen several cases of cyst of the larynx, and his universal experience had been that if they were simply tapped they filled again quickly. Even where a large piece had been removed from the cyst wall he knew of a case in which the cyst had refilled again and again. If it were to cause trouble in breathing, singing, or swallowing in the present case he recommended that it should be snared off *in toto*.

Dr. JOBSON HORNE said that a few years ago he showed a somewhat similar case, which he treated with a snare. He had treated similarly a case previous to that. He recommended the use of an electric snare. The snare should be applied cold, and when drawn home the current connected at the last moment. In that way a clean removal would be effected, and with a minimum destruction of the adjacent parts.

The PRESIDENT asked how the cyst was discovered, as the lady had no symptoms.

Dr. CATHCART replied that the cyst was discovered quite accidentally during the routine examination, the patient having come complaining that her nose was stuffed up owing to a cold. She wanted it washed out, as she was going to sing next day.

A CASE OF ULCERATION IN THE INTERARYTENOID SPACE.

Shown by Dr. CATHCART for diagnosis. The patient, a man aged fifty-two, had been unable to swallow solids for the previous six weeks.

Dr. DAVIS said he did not think the trouble in the larynx was sufficient to account for all the symptoms; he was of opinion that it proceeded from the oesophagus.

Mr. ROBINSON asked whether the patient's sputum had been tested for tubercle bacilli.

Dr. FURNISS POTTER asked whether Dr. Catheart had passed an oesophageal bougie. He had carefully examined this case, but could see no ulceration. There was certainly no visible loss of tissue in the interarytaenoid space.

Dr. CATHCART replied that the sputum had been examined for tubercle bacilli, but with a negative result.

A CASE OF COMPLETE ABDUCTOR PARALYSIS.

Shown by Dr. G. C. CATHCART. The patient, a woman aged thirty-six, had had tracheotomy performed. The left cord was now fixed in the cadaveric position; the right cord was slightly movable.

The PRESIDENT asked whether Dr. Cathcart had come to any conclusion as to the cause of the trouble and as to the nature of it.

Dr. GRANT asked whether the patient had been having specific treatment since the date two months ago which was mentioned.

Dr. CATHCART replied that the patient came in July with œdema of larynx, and was put upon antisiphilitic treatment. She remained on that for about a week, but did not return until two months ago. She was then so bad that intubation had to be done at once. Since he saw her a fortnight ago both cords were much more movable than the description mentioned. She had had no specific treatment since she left the hospital.

CASE OF PERSISTENT JACOBSON'S ORGAN.

Shown by Dr. LAMBERT LACK. The patient, a man aged about thirty, presents a small sinus on the left side of the septum near the floor of the nose about half an inch behind the vestibule. The opening of this sinus is about the size of a pin's head, and it admits a fine probe for three eighths of an inch. This sinus is obviously congenital and almost certainly represents the persistent remains of Jacobson's organ. Dr. Arthur Keith, who kindly saw the case with me, concurred in this opinion, and found a reference to a record of another similar case.¹

Dr. GRANT said that in a French paper on the subject a number of years ago it was pointed out that the cystic part landed considerably higher up on the septum of the nose and that the cartilage remained low down. One had to look considerably higher up for the duct and cyst.

A CASE OF EPITHELIOMA OF THE TONGUE AND LARYNX.

Shown by Mr. E. ROUGHTON.

Dr. SCANES SPICER said if surgical measures were adopted in this case he considered it was a case for complete laryngectomy and that some portion of the pharynx would also have to be removed, and in the light of Glück's results he thought this was a favourable case if the trachea were completely divided and brought out into the neck and even to the skin, so as to shut off completely the lungs from the pharyngeal and buccal wound. He had had one such extensive case in conjunction with two of his general surgeon *confrères*, and had attempted to bring out the trachea, remove the diseased larynx, portions of pharynx, and œsophagus, and also the glands at the same operation, which lasted nearly four hours. The patient stood the operation, but succumbed from cardiac thrombosis twelve hours after. In discussing the case with Professor Glück afterwards, the latter advised in a similar case to remove the glands first, at an independent operation before the extirpation.

¹ Mangakis (Athens), "Ein Fall von Jacobson's-chen Organ beim Erwachsener," *Anat. Anzeiger*, 1902, Bd. xxii, S. 106.

A CASE OF ACHONDROPLASIA IN A CHILD AGED THREE YEARS.

Shown by Dr. SCANES SPICER to illustrate the congenital pug-nose, with all the axial and postural and many of the appendicular features of achondroplasia.

The case had been sent to him from the country on account of mouth-breathing and panting of an exaggerated type, with the tongue in a fixed extruded position on any exertion, extreme depression of root of nose, and alternating internal strabismus—all from birth. She could not talk, stand, or walk, though her mental state seemed not to differ much from the usual child of the same age. The parents had been told that the symptoms were due to adenoids and enlarged tonsils, and wanted to know if an operation would be remedial. On watching the child was seen occasionally when she pulled herself up to breathe perfectly through the nose for a short time, though she relapsed as a rule into mouth-breathing, which gave her a vacant imbecile look. On sitting her in a chair she assumed the position of kyphosis, and on placing her at a table she sprawled over it in a weary way, and rested in a position suggesting scoliosis. On trying to get her to stand she would often collapse on the buttocks and fall over so that the face touched the toes; or if she succeeded in standing her posture was that of lordosis, with protuberant abdomen, upper straight spine, head forwards, mouth open, tongue out, apparently short legs, and her profile and proportions identical with that of the recent photos of achondroplasia published in the *Transactions of the Royal Medical and Chirurgical Society*, vol. lxxxix, p. 409, 1905, and *Lancet*, June 9, 1906, p. 1598. The child was of an exceedingly restless and irritable temperament, and in order to secure skiagrams of the head and chest it was necessary to administer a general anaesthetic. Under anaesthesia it was found that all the deformity of the spine was postural and not organic, and that the height was 35 inches as against $28\frac{1}{2}$ when measured standing against the door. Further, the nasal breathing became perfect, and was then associated with proper costal respiration. On recovering from the anaesthetic, the mouth opened and the breathing became exclusively abdominal again. It was therefore clear that the breathing obstruction was not in the main due to structural changes in the nasal passages or to adenoids; nor did the tonsils suffice to explain it, though they were considerably enlarged. I would provisionally tender the suggestion that the obstruction is due to an excessive flexure of the head on the cervical spine, so that

the body of the axis crowds into the stunted achondroplastic naso-pharynx.

On further examination of the case it was found to agree with previously published accounts of the disease in the following points: (1) congenital origin; (2) depression of the bridge of the nose at the root; (3) distinct shortening of the lower limbs with normal development of the trunk; (4) wheel-spoke appearance of hands (*main en trident*); (5) excess of adipose tissue in the folds of the skin; (6 and 7) protuberant abdomen and apparent lordosis when standing; (8) smooth, pliable skin with fine glossy hair; (9) palate of the high-vaulted character with irregular position and delayed eruption of the milk-teeth; (10) approximately normal mental condition.

It appears to differ from some previously recorded cases in: (1) size of the cranium not disproportionately enlarged, though dome is abnormally high; (2) no prognathus; (3) no beaded ribs or enlarged bone ends.

I must leave doubtful at present the position of centre of body, exact measurements and proportions, and results disclosed by skiagrams. The age and temperament of the child render it difficult to procure rapidly a complete examination and report, and a distant residence in the country makes it advisable that I should seize the opportunity of the child's being present in London on the day of the meeting of our Society to bring the case forward. The interesting problems arising around nasal obstruction in this case, that due to adenoids, extreme mouth-breathing, the typical achondroplastic features and associations here will at once occur to every member of the Society, and time will not permit me to discuss fully now even those which I have thought out.

Dr. SCANES SPICER said that two brothers and two sisters had shown similar symptoms in infancy but to a less degree. They had largely outgrown them. This rather pointed to the extreme nasal depression being due to an arrested or delayed growth of the bone centres of the sphenoid and occipital bones rather than a premature synostosis of the pre- or basi-sphenoid as was observed by Virchow in other cases of stunted nose. A specific history could be excluded with practical certainty. Many of the family had had post-nasal adenoid hyperplasia. The eldest sister has high vaulted palate, superior protrusion, and lost the upper front incisors at twenty-one. The elder brother (twenty) is now 6 ft. 2½ in., hands and feet of acromegalic type, vaulted palate, superior protrusion, has lost upper front incisors. Second sister has had thyroid gland enlarged. Second brother had tonsils and adenoids removed for obstruction and mouth-breathing. Mother and maternal aunt have distinct acromegalic characters of nose, cheek-bones, lower jaw, and lower lip. In short, the morbid states of this family are chiefly those associated with pathological states of the bony cranial basis, or the immediately overlying pituitary body, or the subjacent Luschka's

tonsil. This can hardly fail to be highly suggestive to members of this Society, who in thinking out to the full the factors in any given case of nasal obstruction must often ponder over Luschka's tonsil, Rathke's pouch, achondroplastic sphenoid, persistent crano-pharyngeal canal and morbid states of the pituitary gland, and wonder if their proximity anatomically lends itself to explain such associations as hinted at above.

CASE OF CHRONIC CEDEMA OF THE LARYNX IN A FEMALE BOARD SCHOOL TEACHER, AGED TWENTY-FOUR (FOR DIAGNOSIS).

Shown by Dr. SCANES SPICER. There is a high degree of firm, oedematous, pale swelling occupying the epiglottis and both ary-epiglottic folds. The appearances would be considered pathognomonic of tubercle if any confirmatory signs of tuberculosis could be found, but three examinations of the sputum for tubercle bacilli have been negative. Sir A. E. Wright reports the tuberculo-opsonic index on two occasions as .78 and 1.26, and that the oscillations are not sufficient to justify a diagnosis of tubercular infection. There is a slight difficulty in swallowing, and the voice is somewhat sharp and peculiar in timbre. There are no physical signs or symptoms of phthisis. On the other hand, the patient is a gasping mouth-breather, and has several foul carious teeth. Is septic infection from these the cause of the oedema? The practical question now was, whether this teacher were to be allowed to resume her duties or to be discharged?

Dr. JOBSON HORNE said he knew nothing about the history of the case or the condition of the lungs, but the condition of the larynx was suggestive of tuberculosis.

Dr. LACK said he had seen the case some months ago and had watched the oedema slowly increase. First of all there was symmetrical oedema of the arytenoids, the rest of the larynx being absolutely free. He at first thought it was tubercle, but the patient was in perfect health now and had put on weight, she had no signs of the disease in the chest and no bacilli in her sputum. He thought tubercle could be absolutely excluded. He did not see anything to warrant the view that it was syphilis, and he did not know what it could be.

The PRESIDENT said that, looking at it that day, one would at once have said, as Dr. Horne had, that it was tubercle, but after the history which had been given, it probably was not so.

Dr. JOBSON HORNE, in further remarks, said an X-ray examination of the thorax would be of great help because he understood that the results of an examination with the stethoscope and the staining reagents had been negative.

Mr. C. A. PARKER said he had seen the case when it was at the Throat Hospital, and that some months ago he had asked Dr. Ironside Bruce to kindly X-ray the patient, thinking that possibly there might be a foreign body lodged in the larynx, but nothing abnormal could be seen. Dr. Ironside Bruce also took a radiograph of the apices of the lungs, but was of opinion that no trace of tubercle could be seen.

The PRESIDENT said he hoped the Society would be informed about the future of the case.

A CASE OF EPITHELIOMA OF THE LARYNX (SHOWN ON NOVEMBER 2, 1906).

Shown for Dr. WATSON WILLIAMS by Dr. SCANES SPICER. This case was admitted into St. Mary's Hospital in order that treatment by a bacterial vaccine of *Micrococcus neoformans* might be tried. This has been carried out by Sir A. E. Wright. In all five injections have been given, twenty-five millions at a week's interval four times and forty millions on the last occasion. The injections have not caused any marked negative phase at all, and the opsonic reaction keeps close to the normal line and rather above it. They cause the patient no malaise. He states he swallows well. Occasionally notices the same pain in the ear as before. He looks a better colour than when shown a week ago. A piece removed for examination confirms diagnosis of epithelioma. I have examined his pharynx and larynx twice a week and do not think the mass is larger or has extended; it is certainly cleaner and paler—less congested. Of course the patient has had the advantage of rest and warmth and ordinary hospital diet and was ordered an alkaline spray, and but for this the only treatment has been bacterial vaccine.

Mr. ROBINSON thought the condition of the larynx was now much cleaner, but that there was more growth than before.

Dr. LACK thought the case would be better operated upon than left until it was too late.

In reply, Dr. SCANES SPICER said that at the last meeting Mr. Butlin had expressed the same opinion as Dr. Lack. The patient was given the option whether he would be operated on for excision of the growth or would make a trial of the bacterial vaccine method. He thought Dr. Watson Williams rather favoured the latter, and the patient agreed. He was quite open to fall in with the suggestion of attempting to extirpate it, if the patient and Dr. Watson Williams desired it and if his surgical colleagues supported that course.

CASE OF SOLID CÆDEMA ON THE LOWER PART OF THE FOREHEAD, SIDES OF THE NOSE, AND THE LOWER EYELIDS.

Shown by Dr. HERBERT TILLEY. The patient, a man aged forty-three, had suffered from this condition since he served in the South African War. He thinks the condition started in the skin near the left tear-sac and originated from a small scratch in that situation. The lower central part of the forehead, the sides of the

nose, and the eyelids (more especially the lower) are red and swollen as though the patient had recently been stung in these regions. To the touch the parts are tense and resisting but not painful on pressure. He suffers from severe headache, especially when he stoops. The frontal sinuses had been opened at one hospital but were found to be healthy. Opinions as to diagnosis and treatment were asked for.

Mr. ROBINSON said he had seen three or four cases very similar to this rare condition. He had always called them chronic erysipelas or chronic lymphangitis. Those cases had complained about a sore or crack about the inner canthus, and they had attack after attack of acute redness and swelling until, after a time, they had chronic thickening about the eyes and cheeks. He did not know what treatment to suggest, but if he had a case now he thought he would try antistreptococcal serum.

Dr. GRANT said the man thought he had an undue tendency to bleed, so that it might be a case of defective clotting of the blood, such as was seen in people subject to chilblains and urticaria. The remedy now much recommended for those conditions—namely the salts of calcium—might be worth trying. Lactate of lime seemed to be the least nasty, and doses up to 10 or even 15 gr. three times a day might be given.

Mr. F. J. STEWARD supported the remarks of Mr. Robinson. He had had under his care for some time a somewhat similar case—a young woman whose trouble began with a definite severe attack of erysipelas. She had since had many attacks, each being slighter than the last. She now has solid oedema over the same area as the present case. He had not seen her recently, but was anxiously looking out for her, because he thought it possible that some benefit might be brought about by using a vaccine. His intention was to determine whether her opsonic index for streptococcus was particularly low, and if so, to try what a vaccine would do for her.

Mr. STUART-Low said he had had a little boy in hospital who had a unilateral condition similar to the present case. He had purulent rhinitis on that side. That gradually diminished. It lasted six weeks. Frequently erysipelas of the face was traceable to sepsis of the nose, and it was possible that other cells in the nose might have a septic condition.

Dr. SCANES SPICER said the distribution on the face reminded him of cases of lupus erythematosus, but he hesitated to offer any suggestion that this case might be akin.

Dr. DAVIS did not regard the case as one of erysipelas at all. He had seen many such cases and they had repeated attacks. Some years ago he had shown a girl with the same trouble, where the antra had been drilled before on the supposition that the disease originated there, but it made no difference. He did not think there was such a disease as chronic erysipelas—one would not think of notifying each attack as erysipelas. Women were subject to this condition at their periods, and seemed none the worse in general health.

Dr. JOBSON HORNE agreed with Dr. Davis that it was not wise to put such cases down as chronic erysipelas. Some years ago he looked into those cases of chronic oedema, and found that very little had been written on the subject. No attempt had been made to classify the cases, but from the fragmentary reports they all seemed to have one or two points in common. They were chronic, long-standing cases, very difficult to do

anything for, and none of them had anything the matter with the interior of the nose, therefore they were distinct from the cases referred to by Mr. Stuart-Low. He believed they were brought about by a specific infection, and thought the site of it was intra-nasal.

Dr. DAVIS regarded it as angeio-neurotic œdema.

Dr. JOBSON HORNE considered it belonged to a group of cases distinct from angeio-neurotic œdema.

Mr. ROBINSON said in regard to lymphangitis he had now in the hospital a boy with some puffiness below his eyes. He also had chronic enlargement of the glands in the neck. He removed those freely, and for the next few days there was a marked increase of the swelling in that region. He considered there was some lymph-obstruction causing the thickening.

The PRESIDENT said he also had seen many cases of the kind, and had been in the habit of calling them lymphangitis, assuming in the majority of them some infection. They seemed very like the cases occurring about the alæ of the nose and upper lip, which were often associated with cracks in the skin just under the anterior nares, and these cases were cured by attention to the skin lesions. He had not been able to trace any similar cause for cases like that exhibited to-day, but had looked upon the condition as septic.

Dr. HERBERT TILLEY, in reply, said that, as far as he could see, there was no disease in the nose. The patient had been to many skin cliniques in London, but the dermatologists seemed to have been unable to make a diagnosis, though they did not regard it as lymphangitis. He thought he would try the administration of lactate of lime, as suggested by Dr. Grant, on the principle of "any port in a storm." If that did not succeed he would see what antistreptococcal serum would do. Those who said the condition was chronic erysipelas had the satisfaction of knowing that it was the patient's own diagnosis.

A CASE OF CHRONIC FRONTAL SINUS SUPPURATION, RADICAL OPERATION, WITH IMMEDIATE CLOSURE OF WOUND.

Shown by Dr. HERBERT TILLEY. The patient, a male aged twenty-two, complained of a foul, purulent, nasal discharge "since he was a boy." On examination there was seen a purulent discharge from the right middle meatus and small polypi in the same situation. Pus was easily washed from the right frontal sinus, and also from the corresponding antrum.

The front wall of the sinus was removed and also the diseased mucous membrane. A large opening was made into the nose, and the external wound was sutured. There is now no deformity and no secretion of pus in the right nasal cavity. As there was little ethmoidal disease Killian's operation was not considered necessary in this case.

PROCEEDINGS OF THE BRITISH LARYNGO-
LOGICAL, RHINOLOGICAL, AND OTOLOGICAL
ASSOCIATION.

Meeting held Friday, November 9, 1906.

The President, Dr. R. H. Woods, in the Chair.

Mr. CHARLES HEATH showed *ten Cases illustrating "the Cure of Chronic Suppuration of the Middle Ear without Removal of the Drum or Ossicles, or Loss of Hearing."*¹

Mr. Heath's modification of the mastoid operation, briefly stated, is as follows: The preliminary preparation and incision are as for the radical mastoid. The displacement forward of the cartilaginous meatus is carried out with gentleness and in such a way as not to injure the membrana tympani, and in like manner the operator must avoid localising the antrum by passing probes through the tympanic cavity and antrum. Granulations and polypi are carefully removed from the antrum and aditus; the latter is fashioned to receive the cannulæ devised for perflating and washing out the discharges from the aditus and attic. During the removal of bone, etc., the aditus and openings in the membrane are blocked by means of tiny wet swabs. The bony meatus is enlarged by removal of osseous tissue so as to give free access to the aditus and membrane during the operation and after-treatment. Attention is then turned to the tympanic cavity. Polypi and protruding granulations are removed through the perforation in the membrane, by means of special polypus forceps, especially those granulations which, if left, would, in drying up, become adherent to the edges of the perforation. The "bridge" is not removed as a rule. The membrane, ossicles, and contents generally of the tympanic cavity are carefully guarded against injury. A flap is cut from the roof and posterior wall of the cartilaginous meatus and turned down and back, and the wound is closed in the usual way, a large tube five eighths of an inch in diameter being inserted into the meatus.

The after-treatment consists in blowing through and douching out the aditus and attic by means of specially constructed cannulæ passed through the external meatus into the aditus.

By the removal of the disease from the "danger-zone," the

¹ Reported in the *Lancet*, August 11, 1906.

antrum, Mr. Heath claims that the attic, tympanum, and their contents recover quickly from the suppurative process, and he shows in his cases that the effect of this operation on the hearing power is most beneficial.

Dr. ANDREW WYLIE congratulated Mr. Heath upon the excellent results he had demonstrated, and upon having made a distinct advance in aural surgery. It was always with a great amount of hesitation that one advised a radical operation, only, indeed, when severe symptoms indicated danger to life. Mr. Heath had demonstrated how well his patients heard after the operation when the complete radical would have totally destroyed the hearing. Mr. Heath had shown the speaker his plan before it had been published, and the speaker had operated in four cases according to this method: three of the cases did very well, but one had failed, probably owing to other disease. Dr. Wylie asked how could one tell when there was disease in the attic, in the ossicle, etc.?

Mr. MAYO COLLIER congratulated Mr. Heath on an emphatic advance in the surgical treatment of middle-ear suppuration, an advance for which all otologists would remain indebted to Mr. Heath. It, no doubt, had happened in the past that many surgeons on many occasions had performed an operation similar to this one, but it had fallen to Mr. Heath to discriminate between those cases which required the radical operation and those which would get well with curetting, etc. The speaker condemned indiscriminate destruction of the auditory apparatus. He could recall to mind many cases where the radical operation had been declined by patients after they had been told that the operation would probably make the hearing worse, and as a result of their refusal many ran the risk of losing their lives. As a matter of fact, one or two had died in consequence. Mr. Mayo Collier considered Mr. Heath's operation a distinct advance.

Dr. W. H. KELSON also joined in congratulating Mr. Heath. He had assisted Mr. Heath in many of his mastoid operations, and had often been struck by his gift of mechanical ingenuity and by his attention to detail. In this operation the results as to the patient's hearing made it a great advance in operations for the cure of suppuration of the middle ear.

Mr. CHICHELE NOURSE desired to add his appreciation of the value of Mr. Heath's work to what had already been said. It appeared to him that Mr. Heath had adopted a new line of thought with regard to radical mastoid operations in making the question of the preservation of the hearing a consideration of importance.

Hitherto the sole object of the mastoid operation had been the saving of life, and the surgeon was satisfied if the hearing power was not further damaged after the operation. No doubt the idea of preserving as much hearing as possible for the patient had occurred to most of us, and, as having a bearing upon the operation now under discussion, the speaker stated that he had found it best in performing the radical operation to interfere as little as possible with the lining of the tympanic cavity, especially near the orifice of the Eustachian tube, which it is important should be allowed to remain patent and moist; moreover, he had observed as a matter of fact, for which he was unable to offer an explanation, that after the radical operation inflation through the Eustachian tube by Politzer's method, and especially with the catheter and compressed air, had the effect of improving the hearing, even when the membra *tympani* had disappeared. In the performance of the ordinary radical mastoid operation Mr. Nourse said that he had already adopted several of the excellent and ingenious devices suggested by Mr. Heath, and that he should certainly put the new operation into practice on the first opportunity.

Dr. FREDERICK SPICER associated himself most heartily with the congratulatory remarks. He had tried Mr. Heath's method with most encouraging results.

The PRESIDENT was very much impressed by Mr. Heath's results. In his opinion this was the most important advance since the radical mastoid operation was first devised. It would be a mistake to call this a variation, it was rather the perfection, of the radical mastoid. In only a few of the cases where he had performed the radical operation—so few that he could count them on his digits—did any great improvement in hearing follow the operation, and in explaining the situation to patients he was careful to recommend it rather for the purpose of curing the disease than of improving the hearing. Although, however, Mr. Heath was enthusiastic, and, judging by his cases, rightly so, yet we must remember that we had to see many more cases before we could say that the operation was quite perfect. The only class of case where it might fail was when there was disease in the attic so severe as not to recover when the antrum and mastoid cells were cured. If in every case the inaccessible attic recovered, then, indeed, the operation would be perfect.

Mr. C. HEATH thanked the President and the other Fellows who had spoken for their unanimous congratulations on the results obtained. Especially was he obliged to the President for having

alluded to this operation as "the most important advance since the radical mastoid was first devised," and for saying that it was "the perfection rather than a variation" of the radical mastoid. He said he felt sure they would see the advantages of the operative methods he had instituted for the treatment of chronic aural suppuration. In reply to Dr. Wylie, as to disease of the attic, Mr. Heath said he had lately operated on three of these cases with perforation of Shrapnell's membrane, and had found disease of the antrum in all of them. They were mastoid, and not only attic, disease. In extensive disease of the attic he would probably do the radical operation, as he did not say his method was suitable for all cases, but only for most. He hoped that by early operation the radical mastoid would, in the future, never be required. In reply to Mr. Mayo Collier, Mr. Heath said he settled nothing until he reached and exposed the drum-membrane freely, then, if he found there was no prospect of a reasonably sound ear by using his method, he would do a radical operation. In his last twenty-two cases he had seen no such condition. In reply to Dr. Kelson, he agreed that his ability to make any instrument he required was a great help in these operations. He had considered every detail, and, above all, the best methods for retaining the hearing power. In reply to Mr. Chichele Nourse, his old colleague, Mr. Heath referred to his original publication on mastoid disease (in *Lancet*, December 24, 1904), where he had laid down what were, in his opinion, the best methods of saving the hearing in radical operations. In reply to the President, who had expressed a desire to see more cases, Mr. Heath said he had performed the operation on twelve further cases within the last month, with at least equally good results. One of these patients, who had had perforation and suppuration for thirty-two years, had now, within a month of the operation, gone home with a sound drum, the perforation having healed. He hoped at the next meeting to exhibit this case to the Fellows.

Dr. A. WYLIE showed a *Case of Epithelioma of the Tonsil; Operation; Result.*

C. D—, aged fifty-nine, first attended hospital on April 17, complaining of great pain in swallowing, slight pain on protruding the tongue, and a large lump on the right side of the neck.

Patient was always a very healthy man, no specific history, and weighed last year $11\frac{1}{2}$ stone. At the beginning of January he began to complain of pain in swallowing, and noticed a slight

swelling at the angle of the jaw, which had become gradually larger; the pain became more severe, he lost flesh rapidly. In April, when first examined, he was thin, emaciated, and depressed in spirits, weighed 10 stone. He could not swallow any solid food, and the glandular swelling was hard, movable, and as large as a hen's egg.

On examining the pharynx and pulling the tongue towards the affected side the right tonsil was seen to be enlarged, inflamed, and deeply ulcerated. The posterior pillar of the fauces was eroded, and the soft palate did not move freely. On digital examination the tonsil was very hard. Larynx normal.

A small piece was excised for microscopic examination, and Dr. Wyatt Wingrave reported it to be epithelioma.

Iodide of potassium was prescribed in large doses with no result. On May 23 Dr. Wylie removed the tonsil and part of the soft palate.

He first removed the hard and enlarged glands at the angle of the jaw, then opened the cheek so as to make a thorough exposure. The tonsil, the posterior pillar of the fauces, and the greater part of the soft palate were excised by means of scissors. The buccal mucous membrane was stitched with catgut, and the skin with several strong silkworm gut and numerous horse-hair sutures.

The wound healed up rapidly, but owing to the debilitated state of the patient the temperature varied between 100° and 103° F. for two weeks; on the fourteenth day the temperature rose to 104° F. Dr. Wylie injected one pint of saline solution into the abdominal subcutaneous tissue. In a few hours the temperature dropped and remained normal. After this he made an uninterrupted recovery. He had regained his spirits, weight, and general health, and was perfectly sound save for an occasional regurgitation of fluid through the nose.

Dr. WYATT WINGRAVE reported that the growth was "a typical epithelioma of the tonsil, with well-marked secondary infection of the lymphatic glands."

Mr. MAYO COLLIER congratulated Dr. Wylie on the brilliancy of his operation. It was one that any surgeon might well be proud of.

Mr. CLAYTON Fox said that while the operation had been successful to a certain extent, it was not entirely so, for he could now feel an enlarged gland in the neck.

Dr. FREDERICK SPICER corroborated the last speaker's discovery of a hard gland in the neck.

Mr. DENNIS VINRACE remarked how little the speech had been affected by the removal of a considerable portion of the soft palate.

Mr. MAYO COLLIER did not think that the presence of an enlarged gland at this date detracted from the success of the operation.

The PRESIDENT also congratulated Dr. Wylie on the brilliancy of the operation.

Dr. WYLIE, in reply, said that he had not felt the gland Mr. Clayton Fox spoke of. There might be one, but it was surely very small. It was now nearly six months since the operation. In view of Mr. Clayton Fox's finding Dr. Wylie would watch the patient carefully.

Mr. MAYO COLLIER showed a *Case of Laryngeal Tuberculosis*.

The patient, aged thirty-three, for the past eleven years had more or less continuously been treated for chronic laryngeal catarrh. Two operations had been performed for tuberculous disease of the ribs and cartilage, and consolidation of the right apex had existed for two years.

He presented himself at the hospital some three weeks ago with a continuous and distressing cough, dysphagia, and debility. The larynx was found to be deeply infected. The arytenoids were both swollen, the cords crimson, and a suspicious elevation existed on the left cord close to the vocal process, as well as on the trachea, an inch below the anterior commissure.

The teeth were much decayed, the pharynx atrophic and studded with enlarged veins. The nose was markedly obstructed on both sides. The consolidation at the right lung apex was well marked, and extended below the third rib in front. The site of the operation on the chest wall was marked by two long scars, and a sinus now existed leading to a fresh recrudescence of the rib trouble.

Mr. Collier said the case was of interest to laryngologists from the fact of the apparent long immunity of the larynx from infection. The man had evidently had tuberculosis for twelve years, yet even now the larynx was not seriously affected. Two very small ulcers existed, and there was now no serious infiltration of any of the parts of the larynx. He had treated the case on general principles, giving the patient small doses of syrup of iodide of iron, cod-liver oil, arsenic and glycerine. Under this treatment his cough had greatly abated, the ulcers in the larynx were healing, and the general condition had improved.

Dr. FREDERICK SPICER said this was a very well marked and typical case. Regarding treatment, he wondered what course Mr. Mayo Collier would adopt. Punching out the diseased areas he had tried, but with no very satisfactory results.

The PRESIDENT advised a trial of the opsonic method combined with tuberculin. He had used it in several cases with amazingly good results. In a case of tuberculoma, recently under his care, which had gone on to ulceration the patch had quite healed up under this treatment, and the man was able to talk. Lupns in young people had proved equally amenable.

Mr. MAYO COLLIER replied that this case had so far done very well under general tonic treatment, but he would certainly adopt the President's suggestion and make a trial of the opsonic-tuberculin combined method.

Mr. MAYO COLLIER showed a *Case of Double Abductor Paresis.*

The patient, a priest, aged fifty-six, had for eleven years suffered from hoarseness and inspiratory dyspnoea. Eleven years ago, when the case first came under Mr. Collier's care, the patient was suffering from chronic laryngeal catarrh, post-nasal catarrh, nasal obstruction, and deafness. By treatment and operative procedure on the nose this state of things was much improved, in so much that the voice cleared and the patient returned to his duties as priest. But the voice never quite recovered, and the respiratory dyspnoea had lately somewhat increased.

On examination it was clearly seen that the cords were much thickened, and on ordinary respiration were adducted, leaving a triangular space behind posterior to the vocal processes. On being asked to inspire futile efforts were made, but now and then the patient was able to partly abduct the cords, the muscles acting in a jerky, halting manner. The effort could not be sustained beyond the fraction of a second. Mr. Collier said the general health of the patient was excellent in every respect, and he could not account for the present condition.

Mr. HAROLD BARWELL thought the cause of the paresis was in this case very obscure. As a rule, it was due to some central lesion. Most of these cases eventually came to tracheotomy.

Mr. CLAYTON FOX could not make out abductor paralysis or paresis. He attributed the imperfect approximation of the cords to their being infiltrated and thickened. The patient, he had found, was a snuff-taker, and the spasms were of the nature of histrionic spasm, since they came on only when the patient was speaking.

The PRESIDENT said he had failed to see the movement Mr. Clayton Fox had observed.

Mr. MAYO COLLIER agreed with Mr. Clayton Fox that there was some movement. But it was impaired movement—a true paresis. He did not claim the case as one of paralysis.

Dr. P. H. ABERCROMBIE showed a *Case of "Tuberculoma" of the Naso-Pharynx in a Man.*

This man was shown at the meeting of the Association held in January, 1906, and opinions were then expressed by several Fellows as to the growth being either an adenoma or simply adenoid vegetations. The patient's only complaint was of nasal obstruction, which was bilateral and almost complete, of gradual onset, and of about ten months' duration. There were present nasal catarrh and deflection of the septum, but not in sufficient degree to account for the marked obstruction existing. In the post-rhinal mirror a large, smooth, pale pink, bilobed mass was seen, almost filling the naso-pharynx, and found by digital examination to be growing from the vault. The patient had every appearance of being in the best of health. His family history was good and free from tubercular taint, as was also his own previous history. No evidence of tubercular disease could be detected in his lungs, and he denied ever having had any venereal disease.

On January 19 last, under nitrous oxide gas, Dr. Abercrombie removed the growth entire, in a caged curette; there was little bleeding, much less than is usual in operating on adenoid vegetations. The specimen was given to Dr. Wyatt Wingrave for examination and report, and Dr. Abercrombie was much indebted to him for the very thorough manner in which he had done this work.

The patient quickly recovered from the effects of the little operation, and was soon quite well again, and he had remained so ever since. Dr. Abercrombie thought this case was a very interesting and instructive one for several reasons. Firstly, as to the site of the growth; a localised tuberculous growth in the naso-pharynx is exceedingly rare. He was not aware of a similar case ever having been recorded. Then, again, the patient had always been, and was, when shown, in excellent general health, there having been no suspicion of tubercle either in himself or in his family. Also, from the pathological standpoint, great interest attached to the case in that no tubercle bacilli could be found,

and again as regards certain points of resemblance to lymphadenoma, from which, however, it seemed to be distinct.

This was evidently a case in which a localised tuberculous infection had occurred in the remains of adenoid tissue in the naso-pharynx of a man in other respects healthy, and which might easily be mistaken for one of adenoid vegetations.

Report by DR. WYATT WINGRAVE on a mass removed by DR. P. H. ABERCROMBIE from Naso-pharynx of Male Patient, F. O.—, aged twenty-six.

Smooth, bilobed, firm mass, measuring $1\frac{1}{4}$ in. $\times \frac{3}{4}$ in., and weighing 198 grs., roughened at its attachments.

It consisted of islands of faintly staining tissue, surrounded by areas of darker elements, which by van Giesen stain showed the following details. Each pale area consisted of closely packed epithelioid cells specially selecting picric acid and eosin. They possessed extensive oxyphile cytoplasm and well-defined large, oval nuclei, faintly staining with haemalum. In shape they were chiefly fusiform. Mingled with them were a few plasmocytes, which in other sections stained well with pyronin. Some of these areas possessed one or more giant cells, evidently derived from the epithelioid elements.

Surrounding each island was a well-defined zone of lymphocytes, infiltrated with epithelioid elements, and showing but slight tendency to fibrosis. At the periphery of the mass remains of normal lymphoid tissue in irregular patches were found. Examination for tubercle bacilli gave negative results. There was no caseation.

Although the characters pointed strongly to a tuberculous process, in the absence of bacilli Dr. Wingrave thought it might possibly belong to the type of lymphadenomata recently described by Mr. Butlin at the Pathological Society. Mr. Butlin kindly examined the specimens, and wrote as follows :

“After a careful examination of your sections I have come to the conclusion that the case is probably not one of lymphadenoma.” On the other hand, I cannot but think that it is a case of unusual tubercle. The large pale masses, the formation of epithelioid cells, and the giant cells are very suggestive of tubercle, and point to that conclusion. Again, the disease seems to have developed in lymphoid tissue, the remains of which are evident in parts of the section.

“I quite admit that it is a very unusual place for the develop-

ment of tubercle, and that some of the circumstances of the case are opposed to the idea of tubercle. But still, tubercle does occur in men who appear to be otherwise in excellent health, and in persons in whom no tubercle bacilli are discoverable."

Mr. Butlin further suggested that Dr. Wingrave should submit the sections to Dr. Andrewes of St. Bartholomew's Hospital, who had been associated with him in his investigations upon lymphadenoma. Dr. Andrewes examined the sections and courteously sent me his opinion, saying: "I feel sure the growth is not lymphadenoma. I agree entirely with your diagnosis of tubercle. It is a form of tubercle which I have often seen in lymphatic glands, with no caseation, few giant cells, and great endothelial hyperplasia."

Dr. Wingrave expressed his deep appreciation of Mr. Butlin's and Dr. Andrewes' courteous consideration, because their opinion was of the greatest value in a case of this kind, where the clinical and histological evidence apparently did not harmonise.

That a small amount of normal lymphoid elements was present was not surprising, considering the situation of the growth in what was probably vestigial adenoid tissue. Tubercle, however, in this situation is, in Dr. Wingrave's experience, of great rarity. Such elements as the foregoing, in the absence of specific bacilli and any clinical evidence of tuberculosis, justified the name "tuberculoid."

Mr. HAROLD BARWELL congratulated Dr. Abercrombie on being able to show such an interesting case. He had seen tuberculous ulceration of the adenoid mass with extensions down in the oropharynx in a case which presented very little pulmonary trouble, and even this was quite unusual.

Mr. HAROLD BARWELL showed a *Case of (?) Gumma of Larynx.*

The patient, a man aged twenty-seven, who denied syphilis, was first seen five months ago complaining of dyspnoea and dysphagia. The voice was rather hoarse and rough. A large rounded mass was seen to occupy the right wall of the larynx, projecting outwards into the pyriform fossa and base of the tongue; internally it nearly filled the lumen of the larynx and concealed both cords. The remainder of the larynx was normal. No signs of syphilis elsewhere. He was given mercury and 90 grs. of potassium iodide daily, and the swelling became a little smaller and the dysphagia practically disappeared. However, granulations began to fill the glottis, dyspnoea became urgent, and tracheotomy was performed in August. He had been unable to dispense with

the tube in spite of intra-muscular injections of benzoate of mercury and intra-laryngeal removal of many of the granulations, and latterly the tumour had become more tense and swelling had appeared externally over the right ala of the thyroid cartilage. Microscopical examination of the pieces removed showed simple inflammatory tissue, the vascular changes somewhat suggesting syphilis.

Mr. MAYO COLLIER could not agree with Mr. Harold Barwell's diagnosis in this interesting case. The large mass in the larynx presented a smooth surface, broached only where some pieces had been removed by cutting instruments. The mucous surface was otherwise intact. He drew attention to the protrusion externally of the thyroid cartilage, which presented a tense and fluctuating area under the skin. Here there was evidently perichondritis with abscess-formation. He recommended an incision with drainage at an early date.

The PRESIDENT expressed himself as also influenced by doubts like Mr. Mayo Collier. But he was sure there was no abscess. In his opinion the case was one of epithelioma; he had seen the same clinical picture before in at least two cases which turned out to be epithelioma. The man's age (twenty-seven years) was of little importance.

Mr. HAROLD BARWELL thanked the speakers for their opinions. He would incise the fluctuating swelling over the thyroid cartilage.

Dr. ANDREW WYLIE showed a *Case of Tuberculoma in the Larynx.*

T. N——, aged thirty-one, insurance agent, suffering from "hoarseness" for the last six weeks. He had always been healthy until last April, when, contracting influenza, he had never regained his health.

The present illness began six weeks ago with slight pain on swallowing, while he found that his voice got easily tired.

There was no specific or tubercular history. There was some cough with slight expectoration; tubercle bacilli had been found in it.

The left lung was dull at the apex, but no crepitant râles could be heard.

In the pharynx there was a large nodule on the left side and on the right side small ulcers on the posterior pillar of the fauces.

In the larynx there was an ulcerated growth in the interarytenoid space extending over to the right arytenoid cartilage. There

were four small nodules underneath the left vocal cord, which was infiltrated and did not move readily. The arytenoids were swollen.

This was a case of typical tuberculosis. When Dr. Wylie saw the patient last no ulceration was present and the growth appeared like a tuberculoma, but it had now broken down into a tuberculous ulcer.

Mr. HAROLD BARWELL said this was now a diffuse tubercular infiltration of the usual type, an ulcer rather than a tuberculoma. With regard to treatment, he treated every case on its merits. Local treatment to be efficacious should be thorough.

Mr. CHICHELE NOURSE showed a *Case of Malignant Disease of the Cervical Glands and Larynx in a Man aged fifty-nine.*

The patient was first seen in July last on account of a large and very hard swelling on the left side of the neck, in front of the sterno-mastoid and well above the level of the larynx.

Dr. Udale, who sent the case, had observed some enlargement of the lymphatic glands at least nine months previously. The patient also complained of sore throat and a dry cough. The voice was slightly husky.

On laryngeal examination, the left arytenoid was found to be fixed and somewhat swollen, although the left vocal cord appeared to move.

Four days later the patient was taken into hospital, and Mr. Nourse removed the tumour in the neck. It consisted of a group of enlarged glands, some of which had liquid contents, imbedded in infiltrated tissue. The internal jugular vein was involved in the mass and contained a clot; it was ligatured above and below and the intervening portion was removed.

The day following the operation free haemorrhage occurred from the larynx, apparently from the left pyriform fossa; it was checked by the local application of hazeline and did not recur. The wound healed rapidly. Since then the patient has gained in weight and improved much in general health, although the laryngeal condition is slowly progressing. The left arytenoid and ary-epiglottic fold are oedematous and red.

Dr. Wyatt Wingrave, who kindly examined the growth, reported that it was an endothelioma.

Mr. CHICHELE NOURSE showed a *Case of New Growth in the Pharynx.*

The patient, a painter, aged sixty, complained of interference with breathing, especially at night, and pain on swallowing. He

first noticed that there was something wrong with the throat three months before.

On examination a large, red, sessile tumour was seen to occupy the posterior wall of the pharynx from a little below the level of the edge of the velum downwards nearly as far as the arytenoids. When first seen it was firm on palpation and smooth, but shortly after it began to break down in the middle line. There was no history of venereal disease, and a course of mercurial injection and iodide had very little effect upon its size. No microscopic examination had yet been made.

Mr. CHARLES HEATH showed a *Nasal Polypus 5 inches long, of twenty years' duration*, removed from a delicate blind woman in October, 1906, at the Throat Hospital. The larger end projected from the nose for over half an inch, much distending the right nostril. The posterior end filled the naso-pharynx, where it could be traced by the finger as protruding from the right choana. There was a history of twenty years' duration and growth. A snare was applied well within the anterior naris, but as the polypus was tough and not easily cut by the wire, traction was tried, and it came away entire. It weighed over an ounce at the time of removal, but has shrivelled by immersion in spirit. The part now turned up appeared to be the stem from whence it grew. After removal of this large one, a smaller one was easily seen in the large nasal cavity, certainly situated in the middle fossa; it was also removed, and is shown at the back of the larger specimen. The antrum on that side is dark on transillumination, and the exhibitor believed that both polypi originated in the maxillary antrum in the manner described by Killian.

Dr. WYATT WINGRAVE showed *Microscopic sections of Nævoid Distension of Bony Cancelli of Middle Turbinal*.

The case was reported in detail in the Journ. of LARYNGOL., RHINOL., AND OTOL. for August, 1906. It was associated with persistent hemicrania, which ceased on removal of the anterior end of the corresponding turbinal body.

The vascular channels are distended with blood pressing upon the osseous walls.

Dr. WYATT WINGRAVE also showed *Section of Squamous Epithelioma of Tonsil* from Dr. Andrew Wylie's case.

Meeting on Friday, January 4, 1907, at 11, Chandos Street, Cavendish Square.

Dr. R. H. Woods (Dublin) President, in the Chair.

Mr. CHARLES HEATH showed a further series of *Cases illustrating the Cure of Chronic Suppuration of the Middle Ear*, without removal of the drum or ossicles or loss of hearing.

Mr. CHICHELE NOURSE expressed his admiration of this series of cases, showing such excellent results, and asked if Mr. Heath would show the special instruments he was in the habit of using for his operation.

Dr. FREDERICK SPICER was sure the Association would feel indebted to Mr. Heath for this further opportunity of seeing cases which illustrated the possibility of cure of suppuration of the middle ear with preservation of hearing. He had performed the operation himself on several occasions with most remarkable success. He was sure a trial of the operation would not result in disappointment.

The PRESIDENT had now tried Mr. Heath's operation in several cases. In only one of these, however, was the test, in his opinion, crucial. This was an old-standing purulent otitis media, with polypi and granulations growing out through the membrane and appearing in the meatus, the whole bathed in pus. The operation had been performed a month ago, and the patient had now left hospital, but sufficient time had not yet elapsed to enable him to judge whether or not the operation had been successful. The malleus, however, was necrotic and had to be removed subsequent to the operation. The cases presented were certainly all in a very good state. He wished to ask Mr. Heath for details of his treatment before he proceeded to operate—*i. e.* in cases which were not fulminating. How did he judge when a case was fit for operation? The answer to this question was important, for common ground must be held regarding the necessity for operating before we could compare results.

Although Mr. CLAYTON FOX had not performed Mr. Heath's operation, he had carefully thought it over and would like to hear from Mr. Heath what superiority the latter's modification held over a form of Schwartze which consisted in thoroughly clearing out the antrum and its environs and syringing through it and the aditus into the tympanum. This done, the same end would be obtained, with the advantage that the postmeatal wall would

remain intact. He admitted that the hearing in the cases exhibited had possibly for the time improved, but an inspection of the cases showed many to have marked adhesions, which later, he feared, would lead to tinnitus, rendering ossiculectomy necessary.

Mr. HEATH said, in reply to Mr. Nourse, that he had unfortunately forgotten to bring his new instruments this time for inspection. Regarding the case referred to by the President, it was difficult to tell the true state of the tympanic cavity before operation. After the last meeting of this Society he had performed his operation in the presence of the President on a patient (No. 3 in the list below) at the Throat Hospital with chronic disease of seven years' duration, which had become acute. This case showed the unreliability of information obtained only through the meatus; for during the operation the membrane was fully exposed, and even then the perforation could not be seen, and the probe had to be used to show its size and situation, which did not at all agree with the opinion formed beforehand, and only this operation gave facilities for such reliable information as the surgeon should possess. Had a Schwartz operation been done no information would have been obtained of tympanic conditions, and the treatment could have had no reliable basis. Had a Stacke operation been done—and the history of seven years' duration and three adenoid operations seemed to justify it—the drum membrane would have been destroyed, whereas by the plan adopted this boy had now a sound and excellent ear restored to him. When this operation was over Mr. Heath told the President the perforation would probably be healed in a month, whereas it had healed in nine days, and the patient went home on the 15th day. With regard to the gloomy forebodings expressed as to adhesions ultimately interfering with the hearing, he had found that those patients who had been operated on in May and June of last year had continuously improved since. No operations were done in this way before last May.

Hearing of Case 1, watch on contact before operation; now 4 inches. Case 2, watch on contact before operation; now 14 inches. Case 3, watch not heard even on contact before operation; now 30 inches.

The cases shown by Mr. Heath on the present occasion might form four classes of chronic suppuration: (1) ordinary middle-ear suppuration (such as the three referred to above); (2) cases (two) of so-called attic suppuration, with perforation of Shrapnell's membrane; (3) one case, accompanied by facial paralysis; (4) one case operated on after ossiculectomy had failed.

With regard to attic suppuration, in most the hearing had improved. In one case there had been found an ingrowth of squamous epithelium through the perforation, representing the first stage of cholesteatoma; this was removed. Although none of these attic patients could blow air from the nose through the perforation, yet within a week of operation all of them could do so, showing that the tympanic conditions improved as soon as the cause of irritation (antral discharge) was removed.

The facial paralysis case had supplicated twenty-seven years. There was a large central perforation and free foul discharge. The operation was performed and the tympanum left absolutely alone. Now (two months after operation) there was no suppuration whatever, the perforation was half the size, the hearing had increased from two and a half inches to five from the watch. Now, except when the patient smiled, she showed no paralysis, and another month would doubtless see her perfectly well.

The ossiculectomy case had undergone operation nine years ago, but had never got well. She had two carious patches and much granulation-tissue in the tympanum. Mr. Heath eliminated the antrum only, thus cutting off discharge from that source, and as a result the granulations, caries, and tympanic discharge had ceased.

The above cases seemed to prove that the antrum was the key of the position in nearly every case of suppurative ear disease.

Mr. MAYO COLLIER showed a *Case of Epithelioma of the Floor of the Mouth.*

The case, a man aged fifty-four, on whom he had operated, proved to be one of considerable interest from the fact that he adopted a procedure formulated and published by him some twenty-five years ago, which he thought for simplicity, thoroughness, and freedom from danger, both during the operation and in the after-treatment, left little to be desired. Mr. Collier said that here he was confronted with a state of things in which one of two courses only could be followed. No half-measures were permissible. In this case the floor of the mouth was extensively involved by a new growth about which there could be only one opinion. It was not syphilis; there was no history of syphilis; and the amount of new growth as compared with the ulceration was disproportionate. It was hard, the sublingual glands were involved, and it had already invaded the tongue in the neighbourhood of the frenum. The growth had started as a small ulcer on

the *frænum linguae*, and had gradually within the last six months attained its present dimensions. There were enlarged glands to be felt in both sub-maxillary triangles. The patient was not suffering much pain or inconvenience, but the presence of the growth was evidently telling on his strength. No question of the growth being tuberculous could be entertained. No organic disease could be detected in the thoracic or abdominal organs. Mr. Collier said that under these circumstances, if the whole growth could be got well away, and if the whole of the glands and cellular tissue in the sub-maxillary triangles, and in the neighbourhood of the mylo-hyoid and geniohyoid muscles could be explored and removed, a good prospect of prolonging the patient's life in fair comfort and usefulness existed. He quoted two cases in which he had performed a similar operation to the one he was about to do, seven and five years ago respectively. One of the patients had now lived for seven years in comparative health, whilst the second had died only quite recently from pneumonia following influenza. In neither case did the disease reappear. These, as well as other cases, were, he thought, very encouraging, and made one look forward to and hope for the time when, if a thoroughly efficient and complete operation was the rule in these cases, many more lives would be prolonged than was the present experience. An incision was made on each side from the tip of the mastoid process, curving downwards to the centre of the great cornu of the hyoid bone and upwards to the prominence of the lower jaw one inch external to its centre. After dividing the skin, superficial fascia, and platysma, the deep fascia covering the submaxillary gland was incised throughout the entire length of the skin-incision. The submaxillary gland was next removed in its entirety, not forgetting its deep portion extending to the floor of the mouth, as well as that part which is tucked in between the mylo-hyoid and the genio-hyoglossus. The facial artery and vein were next ligatured in two places below and above the gland. Any gland or cellular tissue existing in this space was carefully removed to the last speck. The lingual artery was now found by a little blunt dissection and tied, the site of the ligation and the empty space being lightly packed with dry ribbon cyanide gauze. The next step was to incise the mylo-hyoid muscle on each side transversely near the prominence of the chin up to and as far as the outer border of the genio-hyoid. This being done, the skin surface of the mylo-hyoid was carefully examined by insinuating the index finger, one each side, between the skin and the muscle, and removing the smallest

glands that could be detected. A similar search was made between the mylo-hyoid and the under surface of the genio-hyoid. The fingers were next insinuated between the upper surface of the genio-hyoid and the genio-hyo-glossus, and any glands here detected were removed. The next step in the operation was to free the genio-hyoid from the genio-hyo-glossus completely from the hyoid bone to the genial tubercle, so that the finger was quite free to pass from front to back. A little manipulation now freed the whole floor of the mouth from its infra-maxillary attachment. Up to this point the mouth had been entirely at the disposal of the anæsthetist, and no anxiety had been entertained as to blood finding its way into the mouth and larynx. The mouth was now opened, and a Smith's gag placed as far back as possible and given in charge of a trustworthy assistant, whose duty it was to see that the gag did not invade the cavity of the mouth and did not slip at a critical moment, and, whilst doing this, to concentrate his attention on the gag and not on the operation. A stout double ligature having been placed transversely through the root of the tongue one inch from the epiglottis, Mr. Collier, guiding his blunt-pointed curved scissors with his left index finger below, cut through the mucous membrane of the mouth as well as the genial attachment of the genio-hyo-glossus in the mid-line behind the previously removed incisor teeth. With the index finger as a guide, the scissors were made to detach the mucous membrane from the lower jaw as far as the angle on both sides. The tongue, floor of the mouth, as well as the entire growth, were now quite free, and were only held attached to the hyoid bone and the glosso-epiglottic folds. With the linguals ligatured, the tongue and floor of the mouth were now, with complete confidence, drawn well forward and cut away close up to the epiglottis with a pair of curved scissors without the loss of a single drachm of blood. A temporary stout thread, Mr. Collier said, may be placed transversely through the stump previous to this division, but this step was only needful as a precaution in case of bleeding from the stump, which is extremely rare. All oozing being arrested by packing ribbon cyanide gauze into the hollow thus left, two drainage-tubes one and a half inches in length were joined together by an intervening double strand of thick silk one inch in width. The silk juncture was placed over the genio-hyoid muscle, and the two tubes were brought out of the inner angle of the wound below in the cleft made in the mylo-hyoid muscle. The gauze packing was then removed, and the skin incision carefully adjusted

with fine silk-worm gut and horsehair. The wound was dressed with layers of cyanide gauze, and a piece of protective mackintosh was placed over the dressing, so that the two draining tubes should pass through it, being accurately adjusted so that no drainage should soil the upper dressing. Further dressing and bandages having been applied, the patient was removed to bed, instructions being given that he be kept continuously in a semi-prone position. With this precaution Mr. Collier said there would be no tendency for the stump to fall backwards; there would be natural drainage of the wounds by gravity; the mouth could be washed out every hour without risk of overflow into the larynx or oesophagus, and the patient could expectorate and feed with greater ease. Mr. Collier pointed out that there had not been the slightest hitch or difficulty throughout the whole procedure. The linguals were found in less than five minutes. There was practically no bleeding, and the patient left the table, in one hour and fifteen minutes from the commencement of the operation, little the worse, as far as his pulse indicated, for his severe ordeal. Mr. Collier said the operation was simple and deliberate, and was capable of doing all that was desired, namely removing the entire growth with all visible glands. The secret of the success was to retain the patient in the semi-recumbent position, and to wash the sloughing cavity (left by the removal of the floor of the mouth) out at first every hour with a lotion of permanganate of potassium, half a grain to the ounce.

The tubes were removed forty-eight hours after the operation. The man was then feeling well and comfortable. The wound in the skin had healed by first intention, the pulse was good, and the temperature normal.

Mr. HAROLD BARWELL said this appeared to be a most excellent method, which had not found its way into the general text-books as it deserved. It ought to afford very free access to the submaxillary glands, and to growths in the floor of the mouth and anterior parts of the tongue.

Mr. MAYO COLLIER again showed the *Case of Bilateral Abductor Paresis* exhibited at the last meeting.

Mr. CLAYTON FOX said that at the last meeting he had ventured to say that there was a considerable amount of abduction of the cords, and on the present occasion he obtained confirmation of his previously expressed opinion, for he observed abduction taking place into the ordinary position for inspiration. There was a great

deal of thickening about the cords; and he suggested that, as on phonation there could be observed a triangular chink between the vocal processes with the apex directed forwards, there was some paresis of the interarytenoideus muscle. His previous suggestion had been that the case was essentially one of laryngeal inspiratory spasm, with perverted action of the cords simulating abductor paralysis. He was now of opinion that the cause of the paresis was a local one—in effect, a myopathic paresis of the muscles from local disease, viz. the chronic catarrh secondary to nasal obstruction.

Dr. DAN MCKENZIE thought there was undoubted abductor paralysis. When he examined the case the cords at rest were in contact, and, with the exception of an occasional slight withdrawal from that position on forced respiration, remained in contact, fluttering, like a sail in the wind, when the indrawn current of air was very powerful.

Mr. NOURSE said that on the last occasion when this case was exhibited he had observed that, after getting the patient to phonate, and while he was watching the cords, they had suddenly made a fairly wide excursion outwards, though previously they had remained close together during inspiration. To-day, however, the vocal cords moved only very slightly outwards during respiration. Whether the condition was one of paresis of the abductors, or of a spasmodic action of the adductors, he thought it was certainly due to a central cause, and not to any local condition.

Mr. DENNIS VINRACE remarked that after he had examined the case at the last meeting he was sceptical as to the presence of abductor paresis, and he had, accordingly, examined the case more carefully on the present occasion, and had observed abduction almost to the full degree more than once during the examination. He, however, agreed that the powers of abduction were impaired.

Mr. HAROLD BARWELL said that Mr. Collier had not claimed for the case that it was one of complete paralysis, but only that there was paresis, and, although the cords did abduct after prolonged phonation, still, there was not full abduction, so that paresis did exist. He did not regard the case as one of organic abductor paralysis, but rather as one of dysphonia spastica, or of a spasmodic affection due to a higher cerebral disturbance.

The PRESIDENT said this was a curious case. He was quite confident on the last occasion that there was marked abductor paresis or paralysis. To-day, however, he saw a fair amount of abduction, not to full abduction, certainly, but outside the cadaveric position. There was, therefore, some varying control on the part of the patient

suggesting in this way a neurosis, which, however, was a rare occurrence in a man of his age.

Mr. MAYO COLLIER thanked the Fellows for their interesting variety of opinions. Bilateral abductor paralysis was a condition not at all well understood. Mackenzie thought most were due to cerebral lesions, but in three cases in which autopsies had been obtained only one presented a cerebral lesion. In none of the others was a nervous lesion found. These cases were presumably due to long-standing catarrh. We had also to remember that the condition might be dependent upon a large tumour in the thorax or mediastinum, or even, as had been recorded, upon a thickened pericardium. The speaker had lately seen this patient two to three times a week. Sometimes on respiration there was some slight power of abduction. On inspiration the cords quivered, but no abduction took place. He agreed with Mr. Clayton Fox that this was a myopathic paresis due to cicatricial pressure of thickened mucous membrane upon the muscles, vessels, and nerves of the part. It was, therefore, not due to a central lesion or nervous cause. For this reason he had given a good prognosis, and expected the patient to live for many years to come.

Mr. HAROLD BARWELL showed a *Case of Tuberculous Ulceration of the Pharynx in a male aged seventeen.*

This patient was the subject of phthisis affecting both upper lobes, but it was neither acute nor very advanced, nor was there much cachexia. He began to suffer from dysphagia in August last and came to Mr. Barwell at the end of October. There was a large tract of superficial ulceration, extending from an adenoid pad down almost to the level of the arytenoids, and occupying nearly the whole posterior pharyngeal wall except a strip along the right side. The edge was neither raised nor hyperæmic, and the base was smooth and granular. The larynx was unaffected. There were no signs in other parts of syphilis or of lupus. The ulcer had neither healed nor extended since first seen; it appeared somewhat healthier and the pain was now quite slight. As to treatment, arrangements had been made for removing the adenoid pad and scraping the entire ulcer under anaesthesia, but its improved appearance had led to a postponement of the operation.

Mr. NOURSE said that he was interested in this case because of the resemblance it bore to one which he had hoped to exhibit, but which had failed to come. His own case was that of a young clerk, aged eighteen, who had been suffering from hoarseness for

a week. On examination, a deep ulcer with raised edges could be seen extending down the back of the pharynx. It was very like a breaking-down gumma. The surrounding pharyngeal wall was reddened, and there was some scarring above it. No history or objective evidence of syphilis was obtained, but the boy's mother, who came with him, showed typical scars in the pharynx and palate, and it appeared that she had been treated for ulcerated throat five years before. An examination of the patient's chest revealed marked tubular breathing at the right apex, otherwise the lungs were sound. A scraping taken from the surface of the ulcer was found by Dr. Wingrave to contain tubercle bacilli. Such a case did not present the characters described in the textbooks as typical; there was no pain and certainly no pallor of the mucous membrane.

The PRESIDENT suggested that this was a case where the opsonin-tuberculin method should be tried, according to the method introduced by Wright. Often after scraping an ulcer of this kind a negative opsonic phase might occur, and if tuberculin were then injected harm would accrue. He himself took the precaution of operating during a positive opsonic phase.

Mr. BARWELL expressed his obligations to the President for his suggestions regarding treatment. In this case the clinical appearances were typical of tuberculosis—the smooth, granular base and the edge neither hyperæmic, indurated, nor undermined. The slight amount of pain, the chronicity, and the absence of cachexia were remarkable features. He, therefore, suggested that this was really something of a borderland case between tuberculosis and lupus.

Mr. HAROLD BARWELL showed again the *Case of (?) Gumma of the Larynx shown at the last meeting.*

This patient had a rounded swelling of the right wall of the larynx, which at first had been diagnosed as gumma; but as intramuscular injections of mercury and large doses of potassium iodide had had no effect, Mr. Barwell had shown the case at the last meeting. At that time a tracheotomy had been performed on account of the dyspnoea, and there was a distinct swelling externally over the right ala of the thyroid cartilage. Opinions differed at the meeting; perichondritis, tuberculosis, and epithelioma were all diagnosed. Since then the exhibitor had cut down on the swelling in the neck, and had found a large cavity filled with pale material resembling granulation-tissue beneath the perichondrium,

and extending to the inner wall of the larynx through a large hole in the middle of the ala of the thyroid cartilage ; the mucous membrane appeared to be intact. The cavity was thoroughly curetted and drained, and the wound healed completely from the bottom. The tracheotomy tube was removed a week after the operation, and that wound had also healed. The breathing, now, was occasionally noisy at night, and there still remained some swelling of the laryngeal wall ; the voice had been good throughout. Dr. Trevor, Pathologist at St. George's Hospital, had kindly examined the tissue removed, and a slide was shown to-day. The section showed large masses of epithelial cells and papillæ cut across ; the appearances were not pathognomonic of malignant disease. There were some necrotic patches in the section, and in one or two places a suggestion of an atypical giant cell, but there were no signs of phthisis in the chest, and the case had not progressed markedly in the last six months.

Mr. MAYO COLLIER had been of opinion, when the case was exhibited at the last meeting, that there was a perichondrial abscess involving the left ala of the thyroid cartilage. The results of the operation had to some extent corroborated the diagnosis. But the microscopical examination of the morbid specimen left the matter still in doubt. It was a puzzling case, not typical of anything.

Dr. WYATT WINGRAVE, so far as he could judge from the preparation, was in favour of its being an epithelial growth, the evidence of granuloma being very scanty. While the epithelial elements were grouped in parts like a papilloma, individually they were strongly indicative of epithelioma. Their polymorphic character, the heteromitosis, the wandering chromosomes and leucocytic infiltration, in spite of the absence of pearls, were features which collectively suggested malignancy.

The PRESIDENT looked upon this report as confirmatory of his previously expressed opinion that the case was one of epithelioma.

Mr. BARWELL, in reply, said that the case had been under observation for six or eight months, and during that time had not become cachectic or markedly out of health and the operation wounds had healed. He proposed to institute a more thorough microscopical investigation, and would treat the case according to the conclusions then arrived at.

Mr. CHICHELE NOURSE showed a *Case of Multiple Sinusitis showing the result of Radical Operation.*

The patient, a woman aged thirty-five, first came under observa-

tion in September, 1904, on account of frontal headache and purulent discharge from the left nostril. A number of polypi in the left middle meatus were operated on several times between that date and March, 1906.

In April, 1906, she was taken into the hospital and the frontal sinus explored. It was very small, and contained some thick grey mucus. A drainage-tube was inserted from the sinus to the nose and the wound closed. It healed by first intention, the tube was removed on the ninth day, and the patient left the hospital four days later. As suppuration continued in the ethmoid and antrum she was readmitted on October 3rd, and a radical operation was performed on the left maxillary antrum; at the same time as much as possible of the ethmoidal labyrinth on that side was cleared away. Recovery was a little retarded by the formation of a peritonsillar abscess on the right side, which pointed between the anterior pillar and the commissure of the jaw. She left the hospital on October 18th. All discharge had ceased; the nose was now quite healthy and the patient well. The linear scar of the operation on the frontal sinus was scarcely visible.

Dr. W. D. HASLAM asked which was the first sinus to become affected. According to Grünwald uncomplicated ethmoiditis was very rare, but, strange to say, in nearly every case of sinusitis which the speaker had seen the ethmoid required treatment. Frontal sinusitis also was generally complicated with ethmoidal disease. It would appear that the frontal sinusitis preceded the ethmoidal suppuration, but was tolerated by the patient until the ethmoidal cells became affected, then the additional pain, together with nasal obstruction, the blocking of the fronto-nasal duct, and the retention of pus, impelled the patient to seek medical relief.

He had recently had under his care a case of frontal sinusitis which had evidently been going on for years, but which had only recently come under his care, on account of pyrexia and acute symptoms, secondary to ethmoidal disease.

Mr. MAYO COLLIER congratulated Mr. Chichele Nourse on the excellent result of the operations, especially as regards the scar on the forehead. Although the whole of the anterior wall of the frontal sinus had been removed, there was little or no disfigurement and the scar was hardly apparent. The result of the whole series of operations—removal of the anterior frontal sinus wall, the opening up of the ethmoidal labyrinth and of the antrum—had given very satisfactory results.

Mr. HAROLD BARWELL congratulated Mr. Nourse on the excel-

lence of his result. One saw many cases at the societies and elsewhere of the operation, but very few in which the nose was quite free from even a drop of pus, as in this case.

Mr. CLAYTON FOX asked whether Mr. Nourse had done an extirpation of the ethmoidal labyrinth as a primary operation. Many cases did well with removal of the anterior ethmoidal region, which was often sufficient to bring about a cure of the frontal sinusitis.

The PRESIDENT also congratulated Mr. Nourse on an excellent result. One point of great importance in these operations on the frontal sinus he wished to draw attention to, and that was that there was no need to remove the whole of the anterior wall. The rule that it was necessary to do so, which was sometimes laid down as a *sine quâ non*, just missed the truth. It was important to remove the whole of the lining membrane, and one had to lay open the sinus sufficiently to allow of this being done. This effectually performed, the sinus would become obliterated. He had never failed to cure all cases in from four to six weeks by attention to this point of the operation. As to danger in frontal sinus operations, he supposed that the main cause of disaster was excessive zeal—scraping the bone too thoroughly, for instance. The lining membrane of the frontal sinus differed from that of the antrum in that it could be easily wiped away by a piece of gauze twisted round a probe. Violent scraping was quite unnecessary, but complete access to every corner of the sinus in order to remove the diseased lining membrane was necessary. He never had had a death from a frontal sinus operation. The case presented at this meeting could not be better. The nasal cavity was quite pus-free. He had found it unnecessary to make a large artificial opening into the nose, unless the bone around the infundibulum was found infected. He was in the habit of stripping down the lining of the fronto-naso canal, and invaginating it into the nose. Since obliteration of the frontal sinus was effected by granulation-tissue, the infundibulum must be the first to close. Hence the opening in the forehead should be kept open to the last.

In reply, Mr. NOURSE said that it was difficult to say certainly which sinus was first affected in this case, but he thought that the disease had begun in the ethmoid, and that the frontal sinus became affected later owing to obstruction of the fronto-nasal canal. The ablation of the ethmoid was done at the same time as the operation on the antrum, and chiefly by that route. The speaker cordially

agreed with the observation of the President that it was not necessary to remove the whole of the anterior wall of the frontal sinus so long as all parts of the cavity could be thoroughly explored. In this case he had done so because the extent of the sinus could not be seen through a smaller opening. Having thoroughly removed the lining membrane, his plan was to pass the largest possible drainage-tube from the floor of the sinus through the fronto-nasal canal, leaving the end projecting a little beyond the nostril, so as to prevent any risk of reinfection of the healing sinus by shutting it off from the nose.

Abstracts.

LARYNX.

Avellis, G. (Frankfort).—*The Shape of the Ventricles in the Singer's Larynx.* “Arch. f. Laryngol.” vol. xviii, No. 3.

The writer has for some years observed that in singers the ventricles of the larynx are remarkably wide. It is only after the breaking of the voice that this is to be found. When the larynx is lowered the orifice is seen to be larger. He quotes Zuckerkandl's and Killian's observations on the larynges of great singers to the effect that the crico-thyreo-arytenoid muscles (including in this term the lateral crico-arytenoid, the superior and inferior thyreo-arytenoid, and thyreo-epiglottidean and ventricular muscles) were found (*post mortem*) exceptionally differentiated and strongly developed. Zuckerkandl believes that these can put the ventricle into a state of greater tension and therefore better adapted for vibration. (Some writers on vocalisation have over-estimated the value of the ventricular bands; perhaps some of us have under-estimated it.)

Dundas Grant.

EAR.

Bryant (New York).—*Operation for Recurrent Middle-ear Suppuration and Mastoiditis.* New York Otol. Soc. “Arch. of Otol.”, vol. xxxv, No. 2.

The mastoid process and cells were removed and the posterior wall of the osseous auditory canal down to the annulus. The superior wall was also removed, opening the epitympanic space, but leaving the attachment of the membrane and ossicles intact. The hearing afterwards, as tested by the watch, was nearly perfect. (A case subjected to a similarly limited operation with satisfactory result was shown before the Otolological Society of the United Kingdom, vol. iv, p. 22.) *Dundas Grant.*

Knapp, A. (New York).—*Infective Sinus Thrombosis: the Varieties of General Infection and Treatment.* “Arch. of Otol.”, vol. xxxv, No. 3.

The two main forms of systemic infection are described—namely one with metastases, known as pyæmia and characterised by severe rigors and

oscillations of temperature, the other without metastases (bacteriæmia and toxinæmia), having a steadily high temperature, marked prostration, and inactivity of the wound. Practically all severe infections starting from the temporal bone are transmitted by the venous sinuses (excepting, possibly, some in children). In treatment, if at the operation we find periphlebitis of the sigmoid sinus, which has caused no symptoms or remittent fever and rigors, one is justified in not attacking the sinus. Subsequent treatment varies mainly according as the symptoms of general infection are severe or not, only in the former case ligature of the jugular being indicated. A good analysis is made of the local conditions likely to be found and their influence on treatment. The author points out the disadvantages of ligature of the jugular vein (very much as has been done in the paper on the subject in the *Journ. of Laryngol., Rhinol., and Otol.*, September, 1905, D. G.), pleading also for the preservation of the facial vein. He considers the infusion of a physiological salt solution as the most potent agent to counteract the general infection.

Dundas Grant.

Kopetsky (New York).—*Acute Purulent Otitis and Mastoiditis treated by means of Artificially-induced Hyperæmia, according to the Method of Bier, with Report of Cases.* “Arch. of Otol.”, vol. xxxv, No. 4.

A light rubber bandage is fastened round the neck so as to produce a slight cyanosis of the face and warmth of the affected part as tested by the touch. It is retained *in situ* for twenty-four hours, then, after an interval of two hours, is replaced. Patients with arterio-sclerosis, kidney, or heart disease are ineligible. A series of cases of acute suppurative otitis with mastoid symptoms is described, in which recovery took place with considerable rapidity without any operation beyond paracentesis. It should be used early and not by persons who are incapable of recognising the supervention of conditions requiring major operation.

Dundas Grant.

Bezold (Munich).—*The Functional Examination of the Hearing with Tuning-forks in Menolateral Deafness, with Deductions on Bone-conduction and the Function of the Sound-conducting Apparatus.* “Arch. of Otol.”, vol. xxxv, No. 3; German edition, vol. xlvi, 1903.

The supposed hearing of an ear without a labyrinth is nothing but the reflection of the hearing of the other healthy or partially defective ear, brought about by the impossibility of excluding the healthy ear during the examination. This reflex is confined to the upper part of the tone range, and extends from the one-accented octave up to the highest limit of audition. Gaps in the hearing of the better ear are reproduced in the graphic chart of hearing of the labyrinthless ear. He considers it quite possible for sound to be conducted through the meatus of the defective ear to the labyrinth of the opposite one. He reminds us that the conducting apparatus is specially for the conveyance of deep tones and is not required for high ones.

Dundas Grant.

Zimmermann (Dresden).—*Incorrect Deductions from Experiments with Tuning-forks on the Function of the so-called Sound-conducting Apparatus.* “Arch. of Otol.”, vol. xxxv, No. 3; German edition, vol. xlvi, 1903.

This author believes that if Bezold had used deep-toned organ pipes instead of tuning-forks his results would have been different, and con-

siders that he erroneously compared feeble deep tones with strong high ones. He reiterates his opinion that the ossicular chain is not a sound-conductor for deep tones, but an accommodative apparatus.

Dundas Grant.

Barr, J. Stoddart (Glasgow).—*Two Cases of Grave Complications of Purulent Ear Disease Operated upon and Reported.* “Arch. of Otol.”, vol. xxxv, No. 3.

(1) A fatal case of septic thrombosis of the lateral sinus, secondary to chronic otitis media purulenta in left ear, and complicated with septic infarctions in the right lung. The symptoms of general infection had lasted for eleven days before the case came under the writer's care. He considers that with earlier operation the result might have been different.

(2) A case of otitic extra-dural abscess associated with paralysis of the sixth cranial nerve and double optic neuritis, operation and recovery. The patient recovered, the paralysis of the sixth nerve gradually passing off, and the vision being unimpaired although the haziness of the optic discs persisted.

The author considers the ocular phenomena most readily explained by a limited basal pachymeningitis extending from the sigmoid groove to the sheath of the sixth nerve or the optic commissure, either by pressure or an infective neuritis. A thrombus in the cavernous sinus is given as another possibility while it is noted that optic neuritis seems occasionally to occur in connection with simple purulent middle-ear disease.

Dundas Grant.

REVIEWS.

Operative Otology, Surgical Pathology, and Treatment of Diseases of the Ear. C. J. BLAKE and H. O. REIK. London: Sidney Appleton, 1906.

In this work the surgical anatomy of the temporal bone and its adnexa is first of all considered from the standpoint of the pathologist and of the surgeon, and several valuable anatomical facts are emphasised. Chapter II deals with the preparation of the patient and of the surgeon for operation, with the methods of sterilising instruments, dressings, and ligatures, and with anaesthesia and anaesthetics. In the following chapter the various morbid affections of the ear requiring surgical interference are described with considerable detail.

In dealing with the surgical treatment of cases of non-suppurative catarrhal middle-ear disease the author looks forward to the time when better results will follow such operations as mobilisation of the stapes, incudectomy and stapedectomy, according as the indications for their application become more concise and definite. He lays particular stress upon a minute study of the middle turbinated body in such cases, regarding pathological changes in the mid-meatal region (the respiratory path) as of the greatest consequence in cases of dry catarrh of the middle ear.

In discussing the treatment of chronic suppurative middle-ear disease the author considers that fully one half of the cases, even of many years' standing, recover under the influence of simple drainage and antiseptic treatment. In many of the other cases minor surgical procedures suffice,

whilst only the minority require extensive surgical interference. Even after extensive operation all cases are not cured, although as technique improves the percentage of failures will doubtless become less and less. Amongst the indications for operation in cases of mastoiditis the author gives a prominent place to the existence of leucocytosis, and considers that leucocytosis in conjunction with symptoms pointing to mastoid involvement justifies an exploratory opening of the mastoid cells.

In dealing with thrombosis of the lateral sinus, the author is in favour of ligating the jugular in every case, considering that it adds hardly any appreciable risk to the primary operation, whilst the fact that the main pathway of septic infection is shut off affords a material sense of security. Labyrinthine suppuration, cerebral and cerebellar abscess, and meningitis are successively dealt with.

In any doubtful case of intra-cranial complication the performance of lumbar puncture is strongly recommended, and the necessity of a microscopic and bacteriological examination of the fluid insisted upon.

In an appendix several useful papers are published dealing with such subjects as the value of paracentesis in acute suppurative otitis media, the localising symptoms of brain-abscess, the removal of the stapes for the relief of auditory vertigo, and the surgical exploration of the labyrinth after the method of Julien Bourguet.

The book will be found distinctly useful by all students of Otology, containing as it does many valuable hints and much sound advice. In any future edition it would be advisable to improve the character of several of the illustrations.

The Common-sense of Voice Development. By IRENE SAN CAROLO and PATRICK DANIEL. Baillière, Tindall & Cox, 1906.

The present work is comparatively free from extreme views. Thus it is interesting to read with regard to the "placing" of the voice, about which masters differ so widely, that "the truth appears to be a mean between all these different views, and the question is essentially one which has to be dealt with according to the various idiosyncrasies met with in different voices" (p. 160). The book is in two parts, the first treating of the "artistic view" and the second of the "medical view" of singing. These are by Madame San Carolo and Dr. P. Daniel respectively. It contains many valuable hints, and the theoretical explanations of the formation of the vowel-sounds (pp. 36, 37) as well as their practical applications (p. 184) are excellent. The production of the consonants (p. 175) and their use in moulding and controlling the resonating cavities (p. 182, etc.) are also well described. The work, though somewhat diffuse, is very readable and instructive. The authors are very reasonable in their pretensions, and on that account their book is likely to be all the more helpful.

NOTES.

AT the invitation of the Committee of Management, Dr. DUNDAS GRANT has accepted the post of Surgeon to the Throat and Ear Department at the Hospital for Consumption, Brompton,

SPIROGRAPHS OR NASAL "BREATH PICTURES."—The practice of testing nasal patency by breathing upon a prepared surface is by no means new, but its usefulness has been somewhat restricted by the want of a satisfactory material. Slate, glass, polished metals, all have their shortcomings, but I have now found that vulcanite with a medium polish gives a very reliable and faithful image. By placing the plate horizontally on the upper lip half an inch from the nostrils and giving one short and steady expiration, a well-defined steam impression results, which on evaporating affords a reliable and striking evidence of the actual and relative patency of the nostrils. The image may be temporarily fixed or rendered more conspicuous for demonstration purposes by lightly powdering it with calcined magnesia or fine starch. Small sheets of vulcanite with a suitable surface and of a convenient size are supplied by the Medical Supply Association, 228, Gray's Inn Road, London, W. C. WYATT WINGRAVE, M.D.

WELLCOME'S PHOTOGRAPHIC EXPOSURE RECORD AND DIARY, 1907.—This popular pocket-book has undergone its annual revision, and no efforts have been spared to bring the information right up to date. A glance at the table of plate speeds will be sufficient to convince the reader that the compilers have lost no time in adding particulars of the latest plates and films. The reliability of the figures given and the completeness of this list of plate speeds will certainly be very widely appreciated. As in previous issues, the monthly light tables face the mechanical calculator on the inside of the back cover. An entirely new series of examples illustrates the article on exposure and increases its value to the novice. The completeness of this information, combined with the simplicity and convenience of the mechanical calculator and light tables, renders the estimation of the correct exposure for any subject an easy matter.

The article on machine, tank, or stand development is very comprehensive and clearly describes the manipulation connected with these forms of development, which have of late occupied considerable attention.

The usual diary and memoranda pages are retained as in previous issues, but increased space is provided for the record of negative exposures, there being now room for 336 entries.

Each copy is accompanied by a folding card, for hanging up, giving useful information regarding the timing of development by the factorial method for various degrees of contrast, particulars of equivalent plate speed numbers according to the different systems in use, etc.

Two editions are issued as usual, one for the Northern Hemisphere and one for the Tropics and Southern Hemisphere. The familiar art green canvas binding has been retained and the price is still 1s.

BOOKS RECEIVED.

Gorham Bacon, M.D., and Clarence John Blake, M.D. *A Manual of Otology.* Fourth edition. London: Henry Kimpton, 13, Furnival St., Holborn, E.C. 1907. 12s. net.

C. P. Grayson, M.D. *The Diseases of the Nose, Throat, and Ear.* Second edition. London: Henry Kimpton, 13, Furnival St., Holborn, E.C. 1907. 21s. net.

THE

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

ON AN AID IN THE TEACHING OF EAR AND THROAT CLASSES.

BY J. MACKENZIE BOOTH, C.M., M.D., M.A.,

Lecturer on Diseases of the Ear and Larynx in the University of Aberdeen,
and Surgeon to the Ear and Throat Department of the Aberdeen
General Dispensary.

DURING twenty years of work in ear and throat classes and clinics I have often desired some simple means of placing in the student's hands synopses of lectures and formulæ and copies of diagrams, preparations, or cases.

For this purpose I have at various times tried jellygraphs, typographs, cyclostyles, autocopyists, etc., with more or less success, but they all fell short in giving only reproductions of script and the simplest diagrams, or they were too complex and difficult for use.

Of recent months I have employed a method which suits fairly well the requirements of teaching in this department of work, and, as it may be found to be of use by other teachers of the same subjects, I have ventured to bring it under their notice. It consists simply in utilising old means for this purpose, and by its use copies of script, diagrams, instruments, preparations, or cases—in fact, anything that can be photographed—may readily be made by the teacher himself in numbers sufficient to supply any ordinary class.

A negative of the subject, abstract of lecture, diagram, formulæ, case, etc., is made on a photographic plate, preferably a slow one (process or half-tone) whereby density and contrast can more

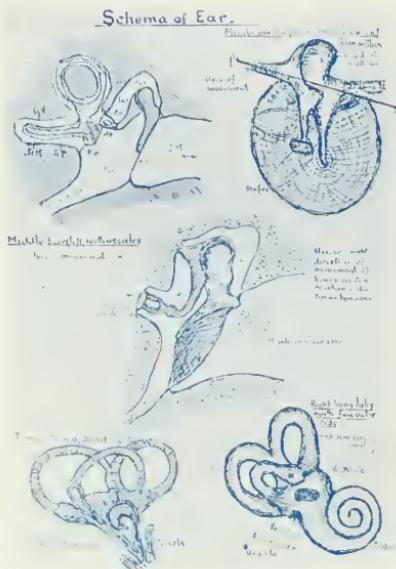
readily be obtained. This is rendered easier by the use of any of the ordinary actinometers of which there are many on the market. The plate is developed, fixed, washed, and dried in the ordinary way, and this requires very little technical knowledge of photography. From this plate any number of copies are readily made by means of the simplest of all photographic processes—the blue or ferroprussiate.

Paper coated with a solution of potassium ferrocyanide is placed under the negative in sunlight or daylight for a minute or two according to its strength, after which it is immersed in water for a short time in order to dissolve out the unaltered ferrocyanide salt, and then removed and allowed to dry. Ferroprussiate paper is made on a large scale commercially in various qualities in rolls of 33 ft. by 30 in. at a very moderate cost, and can be got fresh when wanted or at short notice.

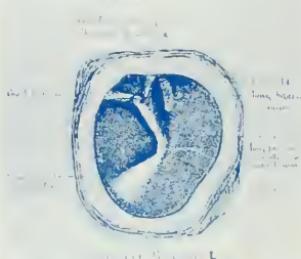
Certain disadvantages attach to this method, but in my opinion these are not sufficient to counterbalance its value for the purposes indicated. The first of these is the blue colour of the prints. This is not of itself a serious objection, as it does not affect the correctness nor the detail of the pictures, nor does it affect their usefulness as aids to teaching. Moreover the colour can be modified in various ways by immersing the blue prints in different solutions, such as lead acetate, gallic acid, ammonia, etc., but this involves more trouble, and the results are not in the main very satisfactory. Another plan consists in using the ferrogallic or ink process, where a positive has to be made from the original negative and printed from and the prints washed and dried as before. The resulting colour is purplish and more like that of ordinary dark printing inks, but printing is not so easy as with the ferroprussiate salts, and the extra trouble of making a positive to print from renders the method much less generally available.

A second disadvantage is that the ferroprussiate paper will not keep long in good condition. The commercial paper in rolls will keep good for about three weeks and somewhat longer if stored in an air-tight box. This, however, is of little consequence, as with a few ordinary printing frames almost any number of prints can be got with sunlight and the roll used up whilst still comparatively fresh.

Subjoined are a few of the copies given out to the members of the class under my charge, which, though reduced to about one-sixth of their size for purpose of publication, may suffice to indicate their fitness as an aid in teaching.



Membrana Tympani

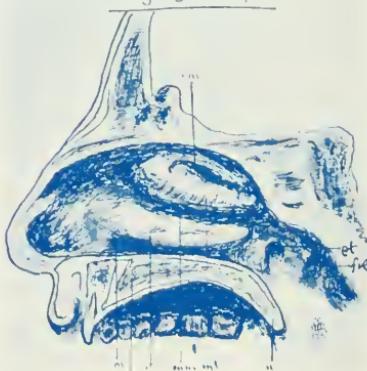


Right and Left Membrana Tympani



Normal and paralysed larynges.

Medial Anteroposterior Section
showing right side of nose



s.m. Superior meatus. *s.t.* Superior turbinate body. *o.t.* Orifice, Eustachian tube. *f.R.* Fossa of Rosenmüller. *i.m.* Inferior meatus. *i.t.* Inferior turbinate body. *m.m.* Middle meatus. *m.t.* Middle turbinate. *h.p.* Hard palate. *u.* Uvula.

TO ILLUSTRATE A PAPER BY DR. J. MACKENZIE BOOTH "ON AN AID IN THE TEACHING OF EAR AND THROAT CLASSES."

Chronic Catarrh of the Tympanum

Moist and Dry forms - humus -

Symptoms -

- 1 Subjective . 1 Tinnitus 2 Deafness 3 Sensations in ears 4 Abnormal sensations in sources of larynx . 5 Vertigo . 6 Paroxysm Willisii . 7 Thrush tendency 8 Odour
- II Objective . 1 Appearance in External Auditory canal 2 Appearance in Membrane tympani 3 Impaction of sympathetic 4 Condition of pharynx & throat 5 Changes in voice 6 Objective changes in Eustachian tube 7 Adenoid growths of nose pharynx 8 Effects of inflation on the tympanic membrane.

Causes.

- 1 Treatment . 1 Constitutional remedies & hygiene
- 2 Applications to nose, nose pharynx and throat
- 3 Treatment of adenoid and pharyngeal growths cauterisation, evulsion
- 4 Excision of tonsils and clitting uvula
- 5 Applications locally of drain
- 6 Operations in the Drumhead incision & excision galvanocautery sulphuric acid
- 7 Tenotomy of Tensor tympani
- 8 Removal of fluid & inspissated secretion from tympanum
- 9 Galvanism (Wreden)
- 10 Dolstanché's method Breathing massage.
- 11 Snigle's speculum
- 12 Injection of Pilocarpin
- 13 Excision of operations on ossicles

Formulas in Diseases of the Ear 1

<u>R</u> <u>Unguenti Borealis</u> 8	<u>R</u> <u>Zinci Oxidi</u>
Sig. <u>Be applied spread on linen as directed.</u>	<u>Zinci</u> <u>à 3ss</u> <u>Sig. Dusting powder</u>
<u>R</u> <u>Olei Caduci</u> 3ij - iv	<u>R</u> <u>Sodar Bicarb.</u> <u>grxv</u>
<u>Alcohol</u> ad 3i M	<u>Glycerini</u> 3i
Sig. <u>To be rubbed well into part with stiff brush</u>	<u>Aquam</u> ad 3i M
<u>R</u> <u>Ung. Hydrogeni</u> 10m:	<u>Sig. Instillation for softening & drying harden ed masses</u>
<u>Ung. Benzocai</u> à 3ss to	<u>R</u> <u>Argenti Nitrat</u> 10z to 20z
Sig. <u>in Chronic eczema</u>	<u>Aqua</u> 3i M
<u>R</u> <u>Liq. Hydrogeni Perox.</u> 5-10%	<u>Sig. 5 drops to be instilled in obstinate cases</u>
Sig. <u>Used warm for cleaning or clearing meatus</u>	<u>R</u> <u>Pulu. Acidi Borici</u> v; <u>Pulu. Acidi Borici</u> v; <u>Iodoform</u> 1/2 v
<u>R</u> <u>Zinci Sulphatis</u> 3g v	<u>Aristol.</u>
<u>Acidi Carbolici</u> gr X	<u>Sig. To be blown into ear after syringing, drying it</u>
<u>Glycerini</u> 3ii	<u>R</u> <u>Alcohol</u> v; <u>Sp. Vini Heptacit.</u>
<u>Aqua</u> ad 3i M	<u>Sig. For instillation with polypha and granulations</u>
Sig. 5-10 drops to be instilled after syringing & drying ear	<u>R</u> <u>Acidi Chromici</u> v; <u>Acidi Trichloracetic</u> v
<u>R</u> <u>Cocainum Hydrochlorat</u> gr XX	<u>Argenti Nitrat</u> (used on probe)
<u>Aqua</u> 3ii 1/2	<u>Sig. Applied on Cotton wool probe to granulations and polypha</u>
Sig. <u>Instil in painful conditions or before operation on ear.</u>	
<u>R</u> <u>Merthiol</u>	
<u>Acidi Carbolici</u>	
<u>Cocainum Hydrochlorat</u> gr XX	
Sig. <u>To be applied over membrane & rubbed thus before operation before operation or on painful conditions.</u>	

The Larynx

Anatomy and Physiology - site - movements external appearances - framework - ligaments articulations - muscles - functions of muscles

- 1 Dilatation of the glottis 2 Tension of the constrictor muscles 3 veins 4 nerve 5 cavities 6 mucous membrane
- Examination of larynx - 1 Laryngoscope history light - principle method, mistakes, difficulties - Laryngoscopic image in different positions -
- During quiet respiration 2 deep inspiration 3 Exhalation 4 Palpation 5 Digital examination 6 Probe.

General Symptoms of Laryngeal Disease
Hoarseness or aphonia - dysphonia - pain - cough - expectoration haemoptysis
General Treatment of Laryngeal Disease. External counterirritation - heat cold leeching - Inhalations. (1) steam w/ inhalers, mode of use (2) dry w/ respirator (3) cold w/ spray. Lozenges - voice stimulants where voice must be used
Pigments - in chronic affections of pharynx & larynx, advantage of exact application to part Troublesome w/ painful sore affections of the pharynx larynx & trachea - laryngeal Syringe. Anesthesia Cocain (20% pigment: 10% spray). Electrically Paracard current, external, internal Operative. Endolaryngeal - extralaryngeal thyrotomy - extirpation of larynx

Diseases of the Nose 1 (cont'd.)

Examination 1 Anterior Rhinoscopy nasal speculum w/ mirror or direct. View inferior turbinate body, inferior meatus, floor of nostril, septum, nose, middle meatus, middle turbinate b. olfactory cloth 2 Posterior Rhinoscopy reflector & rhinoscopic mirror, longue pisseur, palete & trachea. View ridge, 1/2, plum, middle turbinate bridge, middle meatus, upper 1/2 inferior turbinate ed body, endotracheal orifice, fossa of Rosenmüller 3 Palpation posterior nares w/ anaesthetic ante rna noses 4 Probe through anterior nares

General Symptoms of Nasal Disease

- 1 Nasal Obstruction . 2 Frontal pain 3 Unsomnia
- 4 Nasal Voice 5 Hypersecretion 6. Reflex neuritis (asthma, cough, neuralgia) 7 Symptoms referable to cavities of Nose

General Treatment of Nasal Disease.

Instruments Wands, douches, sprays for cleansing and medication (astringent, antiseptic alkaline), Gargle, vapors, cod-liver oil, powder for inflation Anesthetics Cocain 10% - 20% spray 5% menthol 20% Preparation of cocaine aqueous for inhalation operation cocain Caustics chromic acid, chlorine acid, electro Caustic, forceps, snare, snips, Curette, stalmar Bellows, canula, inflating had, cathole, Septum, speculps, bougies. Special instruments for the examination & treatment of cavities, maxillary antrum, frontal sinuses, ethmoidal cells, sphenoidal sinus.

TO ILLUSTRATE A PAPER BY DR. J. MACKENZIE BOOTH "ON AN AID IN THE TEACHING OF EAR AND THROAT CLASSES."

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Twenty-eighth Ordinary Meeting, held at the Rooms of the Medical Society, 11, Chandos Street, W., Monday, February 4, 1907.

The President, A. E. CUMBERBATCH, F.R.C.S., in the Chair.

The following communications were made :

METALLIC CORROSION CASTS OF THE TEMPORAL BONE.

By H. F. MOLE.

After trying several methods of making the casts, the following was found to give the most satisfactory results. A thoroughly macerated temporal bone is taken, and well dried in an incubator. The openings at the bottom of the carotid canal leading into the tympanum are enlarged with a fine needle, and a hole is also made into the Eustachian tube. The superior semicircular canal is then opened with a file. The internal and external auditory meatuses are closed with cigarette paper gummed over them, and all other visible openings, facial canal, etc., closed with putty. A small paper or cardboard funnel is then made, and gummed into the carotid canal at the apex of the petrous bone, the lateral opening having previously been closed with paper. The whole bone is covered over with plaster-of-Paris mixed to a good, thick consistence. The specimen must now be left to dry quietly for a few days. Nearly always some cracks will appear in the plaster, which will require filling up. The specimen is finally dried in the incubator at 50° C., placed with the funnel downwards. Before proceeding with the casting the plaster-enveloped specimen is buried in fine silver sand in a tin with no soldered joints, placed on a tripod over a Bunsen burner, and heated until the metal will just melt on the surface of the sand. The molten metal is then poured slowly into the funnel from an ordinary iron ladle. Whilst doing this the tin containing the specimen is gently knocked against the tripod to ensure the metal flowing through the bone. This must, however, be done *very* gently, otherwise the plaster will be cracked and the metal pour out of the bone into the sand. When the metal

ceases to fall in the funnel no more is poured in, and the specimen is allowed to cool. This takes a long time, and impatience will result in an imperfect cast being obtained. When cool, the plaster is chipped off, and any metal that may have escaped on to the surface of the bone (there nearly always is some) is removed. The bone now filled with metal is placed in a glass vessel containing 20 per cent. caustic potash, and put in an incubator at 50° C. The solution should be changed every few days, and in from three to four weeks the greater part of the bone will have been removed. The specimen is then placed in water for a day, and, finally, in a 1 in 6 solution of hydrochloric acid. This removes all the dense bone about the labyrinth, and in a few days the cast is complete. It is again placed in water, dried, and, finally, its various parts painted and varnished and the specimen then mounted. To obtain the lateral sinus one or two holes are bored from it into the mastoid process, and the sinus bridged over with strips of paper or linen before enveloping in plaster-of-Paris. The metal used is Wood's metal—an alloy of lead, tin, bismuth, and cadmium. The method adopted is that described by Siebenmann, with slight modifications.

NOTES OF A FATAL CASE OF OTITIC SEPTIC THROMBOSIS INVOLVING
THE WHOLE OF THE RIGHT LATERAL SINUS, THE OCCIPITAL
SINUS, AND THE INTERNAL JUGULAR VEIN, AS FAR AS THE
INNOMINATE, COMPLICATED BY NUMEROUS SEPTIC INFARCTIONS IN
BOTH LUNGS AND HÆMORRHAGIC PLEURISY OF THE RIGHT SIDE.

By J. STODDART BARR.

The patient, a married man, aged thirty, was admitted to the Glasgow Hospital for Diseases of the Ear, Nose, and Throat on December 1, 1905, complaining of a chronic discharge from his right ear associated with severe rigor and pain in the neck.

History.—He had had an offensive purulent discharge from the right ear for nine years. His present illness commenced three weeks ago with headache, chiefly right-sided, and at the same time the discharge greatly increased in quantity. A week afterwards pain began in the right ear, so severe that he was compelled to stop work and take to bed. Five days before admission he had the first rigor—a severe one—during which his teeth chattered and the bed shook. Since then rigors have been of daily occurrence, as many as three in the twenty-four hours, very severe in character, each lasting from fifteen to twenty minutes. On the day of the first rigor, a swelling, tender to touch, was noticed behind the

right mastoid region, and two days afterwards some fulness with tenderness of the right side of the neck was observed. The appetite for the past week had been bad, and there had been great thirst, also profuse sweating, while opening medicine had been necessary. A slight cough had been noticed for two or three days without, however, any pain in the chest or expectoration.

State on admission.—Patient looked very ill, being pale and wasted. His intelligence, however, was perfectly clear, his answers being ready and distinct. There was no headache, the tongue was furred, but the breath had no distinctive odour. The temperature was 104.2° F., pulse 124 per minute, and somewhat irregular; respirations 30 per minute, and of a sighing character. Ocular movements and pupillary reactions were normal. There was no evidence of optic neuritis. There was no facial paralysis. Nothing abnormal was found in the lungs or heart. Urine contained neither sugar nor albumen.

Condition of ear and neighbourhood.—There was a considerable offensive discharge from the right ear. The meatus was occupied by granulation-tissue, which obstructed the view of the deeper parts. There was distinct tenderness over the mastoid region, and about midway between the mastoid process and the external occipital protuberance there was a slight swelling, soft and tender to touch, and crepitating slightly on palpation. The right side of the neck, from the angle of the jaw to the clavicle, was very tender on pressure, and at the upper third was distinctly swollen, while in the lower two thirds a hard, cord-like swelling could be distinctly felt, along the course of the internal jugular vein. The upper third of the posterior cervical triangle was likewise painful on pressure. The left ear was normal.

With such symptoms, namely, repeated rigors and violent oscillations of temperature, with pain and cord-like swelling in the neck, with earache and headache, associated with chronic suppuration of the middle ear, the diagnosis of septic thrombosis of the sigmoid sinus and internal jugular vein was confidently made. The question of tying the latter as a preliminary step in the treatment was considered, but it was thought advisable, owing to the patient's general condition, at once to remove the real source of the mischief, especially, also, as the vein was almost certainly already obliterated by a thrombosis. Two hours after admission, therefore, the middle-ear cavities were cleared out, and the sigmoid sinus exposed.

The first operation.—The radical mastoid operation was performed,

and the antrum was found deeply placed, small in size, surrounded by sclerosed bone, and filled with granulation-tissue and pus. After careful curetting, bone was removed by chiselling in a backward direction towards the sigmoid sinus. When the sigmoid groove was reached some bubbles of gas and a quantity of brown, badly-smelling pus escaped, and the sinus, on being freely exposed, was found covered with pus. The sinus wall was soft, white, and sloughy, with several perforations, out of which exuded thick, brown, offensively-smelling matter. In an upward and backward direction I exposed the sinus to the extent of three inches, and found a large, thrombosed, emissary vein, which was traced downwards and outwards to its superficial origin in the soft parts corresponding to the swelling between the mastoid and external occipital protuberance already referred to. The swollen tissue was discoloured and sloughy, and infiltrated with dark-coloured pus, from which gas escaped. The exposed sinus was slit open throughout, and its contents consisted of broken-down thrombi, with dark brown pus, having an extremely foetid odour. The sinus was still further exposed towards the torcular, and slit open until a gush of apparently healthy blood appeared, when it was plugged with iodoform gauze. In a downward direction, towards the jugular bulb, the bone was further removed, and the sinus slit open as far as possible, but brown pus continued to ooze up from below. Iodoform powder and gauze were freely applied over the cavities. Towards the end of the operation the patient's general condition became very alarming, and death seemed imminent, but under the hypodermic use of strychnine and digitalis, with an enema of whisky, the patient rallied.

On the day following the patient's condition had greatly improved, temperature being normal, pulse 88, and respiration 20. For forty-eight hours this improvement continued, when patient had another rigor, temperature mounting to 104° F., and pulse to 120.

Second operation.—It was now decided to operate at once upon the internal jugular, and, with the kind assistance of Dr. James H. Nicoll, I exposed the vein and found it firmly thrombosed as far as the clavicle, where it was ligatured as low down as possible, but, unfortunately, I could not get below the thrombosed portion. In an upward direction the vein was exposed as far as the level of the facial branch, where it was ligatured and excised between the two ligatures. At the upper part of the vein the contents were more fluid and semi-purulent. One deep mattress suture was

inserted at the middle part of the incision, and the usual iodoform dressings applied. This second operation was also followed by some improvement in the general condition. In six days after this operation the temperature fell to normal, and the pulse to under 90. Two days, however, after the second operation definite signs of lung involvement, with some pleuritic friction on the right side were discovered. There was likewise rusty expectoration, which gave cultures of staphylococci alone. The local condition was not satisfactory, and at every dressing the gauze was found soaked in brown offensive pus, which seemed to come mainly from the direction of the jugular bulb, but the posterior part of the sinus wound showed a healing tendency. After the signs of lung involvement became evident the condition of the patient became gradually worse, and death ensued eighteen days after the first operation.

Post-mortem Examination by Dr. JAMES WALKER, Pathologist to the Hospital.

Brain.—Edema not pronounced; no abscess formation. *Meninges.*—No meningitis. *Cranial venous sinuses.*—The following veins were involved: (1) Occipital vein; (2) torcular Herophyli; (3) right lateral sinus; (4) right jugular bulb. All four contained soft, purulent thrombi. The veins on the left side of the skull were normal, and the petrosal veins of the right side were only thrombosed for a short distance in the neighbourhood of the sinus and bulb. The upper remnant of the right internal jugular was filled with purulent clot, as was also the condition of the vein between the lower ligature and the innominate. *Lungs.*—Innumerable small, septic infarctions in both lungs; some recent, others broken down into abscess cavities. Hæmorrhagic pleurisy on the right side.

Note.—I may mention that there has been quite a series of cases of septic sinus thrombosis, complicated with purulent infarctions in the lungs, in the hospital in Glasgow with which I am connected, during the past twelve months. In all of them the lung complication had begun before admission to the hospital. One of the cases, under the care of my colleague, Dr. Connal, who permits me to refer to it here, presented what must be a very unusual phenomenon in connection with the ligaturing of the internal jugular. When the internal jugular vein had been exposed in the usual situation, and was seen to fill and collapse with the respirations, a slight hissing sound was suddenly heard, and at the lower angle of the wound some air-bubbles were seen. No

explanation of this could be found at the time, and the vein was ligatured in the usual way. As some infiltration of air was noticed into the surrounding tissues, the wound was not sutured, but simply packed. On the next day extensive emphysema was found round the neck, over the chest, and even over the abdomen. The condition fortunately soon began to pass off, but I am not sure that it had entirely disappeared before the patient's death, which took place a few days afterwards, evidently from the lung complication. At the *post-mortem* examination careful inspection of the lung and the trachea failed to find the source of the emphysema. I would be much interested in knowing if any gentleman present has had such an experience in connection with ligature of the internal jugular.

Mr. A. L. WHITEHEAD said Mr. Barr had raised two interesting points in connection with the treatment of septic thrombosis of the lateral sinus and of the jugular. He could understand why Mr. Barr did not tie the jugular on the first day—the patient's condition was so critical; but he wondered why he waited more than forty-eight hours. The condition of the lower end of the bulb was so bad that he had obviously not gone beyond the disease. With regard to the operation on the sinus itself, if one slit up the sinus close to the wound, then opened it backwards until there was a gush of blood, and at once pushed in iodoform gauze, some septic clot was very liable to be pushed in with it. He (Mr. Whitehead) had had two or three cases lately, and had been very much impressed by the advisability of first of all exposing the sinus backwards until a point was reached where it appeared to be healthy. He suggested slitting it open, and, if fluid blood came, plugging it, and then deliberately opening the sinus downwards and removing the clot there. In two cases which he had had recently he had demonstrated a small amount of clot distinctly adherent to a portion of the sinus wall, close to the bone disease, and not blocking the sinus at all. It was a partial thrombosis, giving rise to general septic infection. By blocking the sinus above, and carefully removing the clot, there was no necessity for ligaturing the jugular at all, because there was no clot extending downwards. Those were not such severe cases as Mr. Barr's.

Mr. ARTHUR CHEATLE said he would like to hear how many of the members had felt the cord-like swelling in the neck in thrombosis of the lateral sinus, which practically all the books mentioned. He had had a fair number of cases of lateral sinus

disease, but he had not felt that cord-like swelling. If such were present it meant that the mischief had extended right down, and that the case was practically beyond surgical aid. It was given as one of the constant signs to look for in thrombosis of the lateral sinus, and he thought an effort should be made to get that statement corrected in the text-books. It might be one of the ultimate signs. He agreed with Mr. Whitehead as to the treatment of the upper end of the sinus in cases of thrombosis. He had had an interesting case at King's College Hospital, in a child aged twelve, who had never had a rigor, and yet whose lateral sinus was full of pus.

Mr. W. PERMEWAX said that he, like Mr. Cheatle, had failed to find the cord-like swelling in any case of the affection, but he had found a peculiar superficial tenderness of the skin on that side of the neck, in the course of the vein.

Mr. C. H. FAGGE asked whether it was not the case that the cord-like swelling in the neck was simply cervical adenitis. He had seen such swellings in the neck in cases of sinus thrombosis, but had taken them to be glandular. He thought it very doubtful whether anyone could feel an inflamed or suppurating jugular vein. He did not agree with Mr. Cheatle when he said that this case was peculiar because this patient had no rigor. He (Mr. Fagge) thought that if the comparatively high mortality from lateral sinus disease was to be reduced, patients must be operated upon before rigors occurred, because, in his opinion, the occurrence of a rigor meant a systemic infection. He meant that a patient with lateral sinus thrombosis did not have a rigor until there had been an infection, certainly from toxins and probably from organisms of the general circulation by means of the jugular vein. He was not sure whether repeated rigors occurring before the patient was seen were not, in this sense, an argument against operation, because the probability of pyæmia was so great. He had seen, certainly, three cases of lateral sinus thrombosis without rigors, and had not thought it was anything marvellous. Judging by other surgical infections of veins, he thought the diagnosis ought to be made before the occurrence of rigors, which he did not regard as symptomatic of sinus thrombosis *per se*.

Mr. HUNTER TOD asked how Mr. Fagge diagnosed the pre-rigor stage of lateral sinus thrombosis.

Mr. FAGGE replied that in his cases he had diagnosed sinus thrombosis only by meeting with it in the course of the ordinary operation on patients who were acutely ill, just as one met with

extra-dural abscesses which nothing but the general condition of the patient led one to suspect before operating. The bone disease led him to the sinus in these cases, for in them there was a peri-sinuous, extra-dural abscess, and at the bottom of it there was a necrotic mass in the lateral sinus. But there had been no rigors, because in his view the passage of infection into the general circulation was presented by terminal aseptic clot.

Dr. WATSON WILLIAMS said that as there was no rigor in his case, it would be interesting to hear what symptoms led Mr. Cheatle to open the lateral sinns.

Mr. CHEATLE, in reply to Dr. Watson Williams, said the child was desperately ill, and there was a swelling over the emissary vein. When the antrum was opened a dark, carious spot in the posterior antral wall led to a large extra-dural abscess in the posterior fossa and to the thrombosed vesicles.

Dr. URBAN PRITCHARD said it was interesting to remember, as the President and he could, what occurred in pre-operation days. It was very well known that severe rigors in an acute mastoid case did not necessarily mean lateral sinus thrombosis, nor necessarily a fatal result. One of the most marked cases of rigors he ever saw was in a case of acute mastoid disease, some twenty-five years ago, when surgeons were in the position, which they wished never to be in again, of merely drilling the mastoid. The case had marked rigors. He put her into hospital, drilled into the antrum, and she got quite well. The recollection of those pre-operative cases made one think, and prevent one being too certain in diagnosis when seeing doubtful cases now.

Mr. WAGGETT said it was now clearly understood that rigors did not indicate a general infection of the blood, but simply that a toxin had entered the blood. Bacteriologists now clearly distinguished between general blood infections and localised infections, which simply poured their toxins into the blood.

Mr. MOLE said he had had a case in which there were rigors with a temperature of 104° F., with middle-ear disease, and a stinking discharge from the ear. He did a radical mastoid operation. He did not do any more at the time, thinking that, if it were necessary, he would do a further operation afterwards. He thought that was necessary, and that if it were not done the patient would die. The friends refused. He had rigors for two or three weeks, but eventually got quite well.

Mr. ATWOOD THORNE asked, in connection with the swelling on the side of the patient's head, between the mastoid and the occipital

protuberance, whether there was direct connection between the free gas found in the swelling and the gas found in the intracranial sinuses.

Mr. STODDART BARR, in reply, said that Mr. Whitehead asked why he delayed so long before the second operation. It was really less than forty-eight hours. Perhaps it would have been better if only twenty-four hours had been allowed to elapse. He received a considerable fright at the first operation : the patient's condition for a couple of hours was so alarming that death was expected at any moment. He therefore considered the delay justifiable. He did not appear to have explained clearly that the sinus was exposed back until a healthy portion was reached, or a part which was suspected to be healthy, and then it was slit up. The sinus at the knee hardly required slitting open ; it was perforated by so many apertures, and was full of fluid pus. The swelling referred to by Dr. Atwood Thorne was about mid-way between the mastoid and the external occipital protuberance, and it distinctly crepitated on palpation. On cutting behind, to expose the sinus, the emissary vein was discovered, which was found to be thrombosed and softened, and the contents practically purulent. It had infected the soft tissues, and they had become infiltrated with pus and gas.

PORTION OF THE LEFT TEMPORAL BONE, FROM A FATAL CASE OF
CHRONIC SUPPURATIVE OTITIS MEDIA, WITH EVENTUAL MASTOID
ABSCESS, THROMBOSIS OF BOTH LATERAL SINUSES, AND SUBARACH-
NOID SUPPURATION BELOW THE SINUS OF THE RIGHT SIDE.

BY JAMES DONELAN.

The patient, an Italian, aged twenty-four, had scarlet fever fifteen years ago, and, since that time, a purulent discharge from the left ear, with frequently returning pains on that side of the head, and about the mastoid region. He had some treatment in Italy, and at the out-patient department of the Central London Throat Hospital, last summer, with the result that the discharge and pains were much less. He was admitted on January 9 into the Italian Hospital, having been ill for the previous ten days with headache, vertigo, and vomiting, which were believed to have been the result of an overdose of calomel. When seen in the hospital, he had pain and swelling over the left mastoid and side of the neck, rigidity of the neck, headache, and a slight foetid discharge from the left ear. His temperature was 103° F., his pulse 78. There was no paralysis, ocular or otherwise ; he was

intellectually bright and clear, and, being a man of good education, expressed himself both in Italian and fluent English quite clearly. He thought his headaches had some connection with the discharge from his ear, but though an operation had been suggested in Italy he had always dreaded and declined it.

The diagnosis of acute mastoid abscess, with probable thrombosis of the left lateral sinus, was made, and the patient was at once prepared for operation, and anaesthesia was commenced at 6.15 p.m. The operation commenced at 6.20. The superficial tissues were much engorged, and in spite of the free use of adrenalin the oozing from the bone was very troublesome. On making the first close approach to the cavity, and before the chisel really entered it, the pus literally squirted out, showing that it must have been retained under considerable pressure. The septa between the antrum and the mastoid cells had disappeared, and when the outer wall was removed it presented the large cavity now seen. The cavity was swabbed out with 1-1 carbolic acid, and it and the middle ear were irrigated with 1:1000 sublimate solution. The incision was extended backwards so as to explore the lateral sinus, but before it could be followed up the patient showed decided signs of collapse, and the anaesthetist advised postponing further measures. It was now 6.50, and anaesthesia had lasted only thirty minutes. It was accordingly decided to postpone the sinus operation until next day (Thursday). The patient was then remarkably better, temperature normal, pulse 80, no pain, no discharge from wound, some sanious discharge from the meatus, but no pus. For the next two days he continued very well, and seemed likely to make a rapid recovery. The operation on the sinus was, accordingly, again postponed. On Sunday morning, however, he seemed drowsy, and complained of occipital pain. There was no ptosis, nystagmus, or paralyses. The eyes were, however, intolerant of light. Speech distinct, but slow; bowels constipated. There was some retraction of the head, but Kernig's sign was absent. The pulse had fallen to 60, while the temperature had gone up to 99.5° F. The wound looked quite healthy and had almost healed by first intention, except at the lower end. As the symptoms appeared to point to abscess of the temporo-sphenoidal lobe, as well as sinus thrombosis, it was decided to examine both structures. The patient was anaesthetised. The temporo-sphenoidal dura was found to be normal, but before the sinus could be exposed the patient collapsed. Artificial respiration, transfusion of salt solution, and all the usual measures in such circumstances were

tried without avail, and the patient died in about an hour and a half.

The autopsy disclosed a circular patch of old meningitic adhesions, extending for about one inch and a half above and one inch below the left lateral sinus at the bend and descending portion. About one inch of the left internal jugular, its bulb, and the lateral sinus as far as the torcular were filled with firm thrombus, showing, however, no visible pus. The right sinus also contained isolated patches of soft thrombus. The only apparent pus was a circular patch about the size of a shilling on the surface of the cerebellum below the bend of the right lateral sinus—that is, on the opposite side to the mastoid abscess. The right tympanum and temporal bone, as well as the other organs, were healthy.

While one regrets that the condition of the patient prevented the opening of the sinus at the first operation, it is not probable that his life would have been saved in view of the collection of pus on the right side. The case is in other respects instructive, as while it is probable that a cannulated thrombus had already formed in the left lateral sinus, the patient's remarkably improved condition after the evacuation of the abscess encouraged the belief that all danger was at an end.

Mr. WHITEHEAD asked what was the temperature prior to the first operation, and what the age of the patient was. In young children he had been twice misled by the temperature being practically normal, persistent vomiting and intense headache leading him to suspect brain abscess. But *post mortem* there was nothing found but a firm thrombus of the lateral sinus.

Dr. DUNDAS GRANT asked whether there was any disease of the temporal bone on the right side.

Dr. DONELAN, in reply, said the patient was twenty-four, and had had scarlet fever fifteen years ago. His temperature on admission was 103°. The right ear was healthy.

EPITHELIOMA OF THE TYMPANIC MUCOSA, FOLLOWING CHRONIC SUPPURATIVE OTITIS MEDIA.

BY W. MILLIGAN.

The patient, a young married woman, aged twenty-nine, had suffered from chronic suppurative catarrh of both middle ears for twenty-seven years, following a severe attack of measles when two years of age.

For a fortnight previous to applying at the hospital she had had severe pain over the right side of the head, intermittent during the day but almost continuous at night.

Upon examination the right auditory meatus was found blocked by a somewhat dark-coloured, greyish polypus, bathed in a profuse muco-purulent, foetid secretion. There had been no haemorrhage, and the growth did not bleed upon manipulation. The hearing power upon the right side was almost gone; there was, however, no evidence of labyrinthine involvement. There was slight facial paresis upon the right side. The left membrana tympani was perforated—in fact, nearly gone, and the tympanic mucosa was discharging fairly copiously. Her hearing power upon the left side was 10 per cent. of the normal. There was no nerve deafness.

Antiseptic treatment was first prescribed. On seeing the patient a week later the right-sided facial paralysis had increased considerably, and the pain was as severe as formerly.

The patient was admitted to hospital and a radical mastoid operation performed. No undue haemorrhage was noted at the time of operation. Very considerable destruction of bone was found to have taken place along the roof of the antrum, and in the region of the descending portion of the Fallopian aqueduct. For the first few days following the operation there was great relief, and at the first dressing, five days after the operation, the wound looked well. Four days later pain was again complained of, accompanied by slight elevation of temperature. When the dressings were removed it was found that all the stitches had given way, and that the antro-tympanic cavity was full of a fungating, vascular, and sloughy growth. A portion of this material was removed and examined microscopically. Enormous proliferation of squamous epithelium was found, with well-marked cell-nest formation. The cavity was thoroughly scraped and treated as an open wound, being lightly packed with gauze. The dressings were changed each day, and morphia was given at night. There was now considerable loss of weight and of strength. There were no enlarged glands to be felt at this stage.

The patient was referred to the X-ray Department at the Manchester Skin Hospital, and is at present under treatment there. There is no appreciable improvement, however, after three weeks' treatment, but a very marked increase in the amount of discharge from the cavity has been noted.

The case is brought forward as an illustration of one of the

rarer results of chronic suppuration of the middle ear, namely, the development of malignancy after prolonged irritation in a suppurating cavity.

Mr. PERMEWAN said he did not know how rare the condition was, but he described an exactly similar case five or six years ago, where malignant degeneration took place after some twenty-five years' suppuration. It was operated upon in the same way, and the patient eventually died. That case also had facial paralysis, and it was said at the time that that always occurred.

Mr. CHEATLE said that some years ago Mr. Ballance showed before the Society a case of sarcoma in which all the nerves emerging at the jugular foramen were paralysed. A week later he, Mr. Cheatle, saw a case which Dr. Ferrier sent to him at King's College Hospital, in which there was the same paralyses. There were granulations in the fundus, and on removal he found them to be epitheliomatous.

Dr. PRITCHARD reminded members of the great relief to the pain afforded in these cases of carcinoma of the middle ear by operation. It might be said that it was against the rules of surgery to interfere with carcinoma unless it could be completely eradicated, but there was an exception in the cases under discussion, because of the great relief to the pain.

Dr. GRANT said he could corroborate what Dr. Pritchard had said, by reminding members of a case which he described at the time Mr. Ballance's case was brought forward. The operation made the patient completely comfortable for six or eight weeks afterwards; he then developed temporo-sphenoidal abscess, and died after having become unconscious. In that, and in other cases which he had seen, a most striking feature was the extraordinary extent of bare bone on the posterior wall of the meatus. In the case referred to the epithelioma showed itself as very pale granulations, and it did not excite his suspicions. It was not until after he had opened the mastoid that he found it full of tissue which was different to the usual. Since then the same points had led him to a diagnosis at an earlier period, though too late for anything effectual to be done. His colleague, Dr. Abercrombie, had a case the other day in which the features were almost exactly like those of Dr. Milligan's. The petrous bone was quite full of epitheliomatous tissue, which he removed. He kept the wound behind open, as it still was, and the patient was now more comfortable.

Mr. R. LAKE said it was advantageous to have growths of the kind

reported, as there were not many on record. Where a malignant growth in the middle ear appeared after a long-continued suppuration it must be totally different from malignant disease starting in the middle ear without previous suppuration, because one could not see that it was very easy to have squamous epithelium in the middle ear unless there had been an epidermisation of the mucous membrane beforehand. In recording and quoting cases of malignant disease of the middle ear, care should be taken to separate them into two distinct classes, one with, and the other without suppuration, for some time before. Such cases should always be carefully recorded.

A CASE OF CEREBELLAR ABSCESS.

By A. L. WHITEHEAD.

The patient, a boy aged fifteen, had chronic left otorrhoea for three years following measles. Severe pain had been present for fourteen days in the left ear, and ten days before his admission into the hospital a mastoid swelling appeared.

On admission there was an abscess over the left mastoid region, and the auditory canal contained pus and granulation-tissue. The temperature was 99° F.; pulse 98; respirations 18. The radical operation was performed and extensive disease was found, the lateral sinus when exposed being covered with granulation-tissue.

The boy recovered satisfactorily from the operation, but complained of persistent headache. The temperature was normal and pulse 84. On the second day after the operation it was noticed for the first time that the optic discs were congested and the edges blurred. Nystagmus could be elicited on extreme rotation of the eyes to the left.

Although the boy seemed quite bright and well and was not in the least drowsy, the presence of headache, nystagmus, and commencing optic neuritis, indicated the necessity for exploration of the cranium.

Three considerations determined the exploration of the cerebellum rather than the temporo-sphenoidal lobe: first, the presence of nystagmus; second, the extension of the disease in the temporal bone backwards, the tegmen being healthy; and thirdly, that observations on a large number of cases show that when intra-cranial abscess exists with external mastoid abscess it is almost invariably present in the cerebellum, and very rarely in the temporo-sphenoidal lobe.

The cerebellum was explored through the area between the posterior semicircular canal and the lateral sinus, and an abscess in the left lateral lobe containing about one ounce of pus evacuated. The abscess was not washed out at the operation but was irrigated at subsequent daily dressings. It would be valuable to know the opinions of the members of the Society regarding the value of irrigation at the operation or at the subsequent dressings. There was uneventful and complete recovery.

Mr. PERMEWAN asked whether there was ample room to explore the cerebellum in the space between the semicircular canal and the sinus?

Mr. LAKE said he had operated through that particular area, and removed pus from the posterior fossa, and he could corroborate what Mr. Whitehead had said—there was ample room.

Mr. HUNTER Tod said he had recently operated on two cases of temporo-sphenoidal abscess. After performing the complete mastoid operation he chiselled through the bone at the junction of the squamous portion of the temporal bone and the tegmen tympani. The opening was only sufficiently large to insert a small tube into the brain abscess, the outer end of the tube being sutured to the skin. He did not afterwards irrigate the cavity. In one case the tube was kept in five days, and in the other nine days. In exploring the cerebellum he did so in the same way as Mr. Whitehead, going between the lateral sinus behind, and the semicircular canals in front, and found this method satisfactory. In answer to Mr. Whitehead, Mr. Tod said that by a small opening he meant an opening sufficient to admit a tube about the size of one's finger. He had used the word "small" in contra-distinction to those who, on exploring an intra-cranial abscess, removed a large area of the bone.

Mr. SECKER WALKER said he did not think it was possible to effectually syringe out the abscess cavity at the time of operation. The pus is forced out by the pressure behind, and as it escapes the soft abscess walls collapse and come together, entirely obliterating the cavity, so that the injection of fluids without using force is impossible. Only when the abscess is chronic and has a thick non-collapsible wall can this be done. He believed it was entirely a matter of chance, in acute cases, as to whether the cavity completely emptied itself, or there remained behind, shut off by the collapsing walls, a small collection of pus, which might easily produce a second abscess. This would probably not be suspected at

the time, and was, in his opinion, the usual cause of recurrence. As for effective and thorough syringing in the repeated dressings of these cases, he thought it merely meant a cleansing of the cylindrical hole produced by the drainage-tube, and could very soon be dispensed with.

MR. E. WAGGETT said that when an abscess had been detected with the pus seeker the instrument should not be removed until a drain-tube had been inserted.

MR. WHITEHEAD, in reply, said he found absolutely no difficulty at all in the operation; there was ample room. The sinus was partially held back by the periosteal elevator by an assistant, and then the bone could be easily chipped away. He had been interested in what Mr. Tod had said about temporo-sphenoidal abscesses: he, Mr. Whitehead, had had two on two following days. His experience was that they did not do very well with a small opening and a small drainage-tube. They must be opened more freely, otherwise there would be a re-accumulation of pus later on. Still, an opening admitting a tube as large as the thumb, as mentioned by Mr. Tod, would be quite sufficient. He thought Mr. Secker Walker had given the true explanation why success was achieved in some operations and not in others. If the cavity was soft and thin-walled, and opened in a dependent part, the walls would be forced together, and nothing more need be done. In other cases, where there were loculated cavities—and he thought the President's case was one such—it was difficult to know what to do. If it were opened again and explored, and something resistant felt, it was difficult to know whether it was the wall of a saccule or healthy brain tissue; and further explorations might result in the spread of the infection and the death of the patient.

NOTES OF A FATAL CASE OF CEREBELLAR ABSCESS (WITH SPECIMEN).

BY CHICHELE NOURSE.

The patient was a boy, aged six, with chronic otorrhœa on both sides, of eight months' duration. When first seen he had suffered from severe pain in the left ear for five days, with frontal headache and occasional vomiting. There was pallor, hebetude, and an appearance of serious illness; moderate fever and a rapid pulse. Some tenderness existed over the left mastoid, but no swelling. In the attic of that ear there was a granulation. The case was regarded as urgent, but, owing to the parents, it was not until four days later that the boy was admitted to the hospital. At that

time his condition was unchanged. There was no optic neuritis; the knee-jerks were normal; there was no nystagmus or vertigo. A complete mastoid operation was performed the next day. The bone was discoloured. The first stroke of the gouge liberated thick, greenish pus, and on removal of a thin shell of bone a large cavity was exposed, communicating above with the antrum, and behind with the lateral sinus, the wall of which was covered with granulations. The tympanum, attic, and antrum were full of granulations. Dr. Wyatt Wingrave reported that the pus contained a bacillus, morphologically like Pfeiffer's, in fair numbers, and also a few cocci.

Immediately after the operation the pain and fever disappeared, the pulse became steadier, and the general condition improved. Progress was satisfactory until the sixteenth day, when the patient vomited several times and complained of headache. At the same time the temperature rose to 100° F., and the bowels became constipated. Then followed drowsiness, dilatation of the pupils, retraction of the head, and general irritability. The headache, chiefly occipital, became very severe. Death occurred rather suddenly on the morning of the nineteenth day.

Autopsy by Dr. Wyatt Wingrave.—In the left lobe of the cerebellum was a large abscess, of which the outer wall was formed by an extremely thin layer of brain-substance. It contained about an ounce and a half of greenish pus, with a faint, but not foetid, odour. It was apparently of long duration. Microscopically the pus contained a few irregular nuclei and granular débris, with diplococci. Beyond some venous distension the brain and meninges were normal. There was no clot in the sigmoid sinus.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

One Hundred-and-tenth Ordinary Meeting, January 4, 1907.

J. B. BALL, M.D., *President, in the Chair.*

HENRY J. DAVIS, M.B., }
W. JOBSON HORNE, M.D., } Hon. Secretaries.

Present—25 members.

The minutes of the previous meeting were read and confirmed.

The following communications were made :

Dr. WATSON WILLIAMS showed stereoscopic skiagrams of the nasal accessory sinuses, from the lateral and transverse aspects, revealing the presence of pus in some of the cavities.

A CASE OF SUBMUCOUS RESECTION OF THE SEPTUM IN A MAN AGED THIRTY-SEVEN.

Shown by Dr. STCLAIR THOMSON. The operation was made from the free end of the quadrilateral cartilage. The specimen showed a large maxillary spine and a high deviation with a vertical ridge. The marked external disfigurement had been improved by the operation.

A CASE OF SUBMUCOUS RESECTION OF THE SEPTUM IN A BOY AGED FIFTEEN.

Shown by Dr. STCLAIR THOMSON. The specimen showed a large maxillary spine and a vertical bony spur removed from far back in the nose.

The PRESIDENT said the results appeared to be very satisfactory.

Dr. E. A. PETERS asked Dr. Thomson whether he intended to make a further resection of the nasal bones, so as to remedy the bony defect and give credit to the cartilaginous septum.

Dr. SCANES SPICER said in the cases shown the procedure had been carried out with great thoroughness. He thought Dr. Thomson and he had converted each other on the question of general *versus* local anaesthesia. At a meeting of the Royal Medical and Chirurgical Society in June he (Dr. Spicer) said he had never succeeded in completing a case to his satisfaction except under a general anaesthetic; but since July 1, 1906, he had done twenty-two cases with only local anaesthesia, which he found answered perfectly, and he understood that Dr. Thomson was reverting to general anaesthesia. The operation was necessarily a long one in most cases, but much time was saved by local anaesthesia as compared with general. He had never succeeded in getting away such a large piece of bone in one piece as Dr. Thomson had shown in one of these cases. He now provided himself with Wood's and Heath's septum forceps, chisels, and a Heath's big mallet, and felt that with these any bone could be effectually dealt with. He deprecated hurrying the operation so as to get it done in something like twenty minutes at the cost of thoroughness. Of course it was necessary to psychologise the patient to the extent of convincing him that he would not be caused pain, which was in truth the case. He now always rubbed in (as recommended by Otto Freer) solid cocaine powder at first, and frequently repeated it during the operation, asking the patient to warn him if he felt anything like a suspicion of approaching pain.

Dr. H. SMURTHWAITE said that eighteen months ago he read a paper

on thirty-seven cases which he had done without once using general anaesthesia. He could bring up pieces of bone which he had removed as large as a florin. Naturally, neurotic patients were difficult. The object was to do one's best for the patient, therefore why should it matter whether the operation took twenty minutes or an hour? The improved instruments and technique would gradually lessen the time necessary. Novocain or eucaine could be injected under the perichondrium, and in the majority of cases the operation with adrenalin could be done bloodlessly. One heard of deaths under chloroform during operations on the nose and throat, and from that point of view also local anaesthesia was best. Women were not excepted; they sometimes stood it better than did men.

Dr. FITZGERALD POWELL thought Dr. Smurthwaite's experience hardly corresponded with the greater number of the members who had been in the habit of doing this operation. In his own case he found it much easier to do the operation under a local anaesthetic, when one had a good view of the field of operation and was not interfered with by the movements of the patient and the bleeding which was induced by the anaesthetic. Speaking generally, men bore the cocaine in local anaesthesia better than most women and boys, who were usually very nervous and liable to collapse from the effects of the cocaine, and when doing the operation in a sitting posture it was not uncommon to have the patient falling forward in a fainting condition. He thought a general anaesthetic better for most women and boys.

Dr. FURNISS POTTER said he had had some experience in performing these operations both under general and local anaesthesia, and gave his opinion unhesitatingly that where possible cocaine was much to be preferred to a general anaesthetic. The fact of the patient being under a general anaesthetic handicapped the operator considerably, owing to mopping out of the throat and altering the position of the head. He had not found women or boys to be any exception if it were explained to them that they would not have to endure pain. He was in the habit of using a Thudicum's speculum with long but not fenestrated blades. He objected to the speculum referred to by Dr. Tilley because the fenestrations allowed the mucous membrane to bulge through and narrowed the field of view. The speculum he used was of a pattern suggested by Dr. StClair Thomson with two-inch blades—non-fenestrated.

Mr. HERBERT TILLEY thought there was an advantage in using fenestrated specula in a very narrow nose, because larger forceps could then be passed into the nasal cavities. He selected the form of anaesthetic according to the temperament of the patient. Though there might be no pain with local anaesthetics, some people were continually fidgeting, and no amount of persuasion seemed to diminish their alarm, and no anaesthetic had yet been invented which would allay this mental perturbation. In administering local anaesthetics he applied a 10 per cent. solution of cocaine in the form of a spray first of all, before puncturing the mucous membrane to inject eudrenine. After injecting the mixture of eucaine and adrenaline chloride (eudrenine) he waited ten minutes, and then was able to do the operation without being hampered by oozing of blood.

Dr. STCLAIR THOMSON, in reply, said he would like to improve the nasal bone of one of the patients, and perhaps some member would suggest how it should be done, whether from the outside by turning up a flap, or entirely from the inside. He had only had one or two such cases. In one he turned a flap up from the side of the nose and chiselled the

bone away. The scar barely showed afterwards. He formerly operated on such cases under chloroform, because he thought people would not believe in the power of cocaine. Then he started with cocaine, and did thirty cases under it. The difficulty mentioned by Dr. Tilley in the case of nervous patients was a real one, and hampered the operator; they were particularly terrified at the sight of the chisel and mallet, despite the surgeon's assurances. One private patient still blamed him for having done the operation under a local anaesthetic. It was easier to do so. But with a really skilled anaesthetist the operation could be done as well and as bloodlessly under chloroform as under local anaesthesia. He advised operators not to use chloride of ethyl, or gas, or the least suspicion of ether. He operated with the end of the table well raised; it was quite easy to operate with the patient in a reclining posture. He had used the various instruments referred to, but where there was a big maxillary crest he had not been successful with anything but a Killian's chisel. With regard to time, one could get up to removal of cartilage in fifteen to twenty minutes. He had used Ballenger's knife ever since he saw it described. But he could not get a good pattern of it in England. Instead of being stirrup-shaped it should be V-shaped in the middle, so that it would cut out more bone than his did. Perforations afterwards were practically unknown. One of the patients shown was under cocaine forty-five minutes; the other was under a general anaesthetic two hours, but the actual operation did not occupy more than fifty-five minutes, as the patient took the anaesthetic very badly and the administrator was not particularly skilful in this sort of work. The really difficult part of the operation was the removal of the maxillary crest and of bony spurs situated far back. It was to illustrate the results in such cases that these two patients were shown.

A CASE OF CYST IN THE FLOOR OF THE NOSE.

Shown by Mr. C. A. B. HORSFORD. The patient, a woman aged forty-five, presented a cyst in the left floor of the nose, beneath and pushing up the left inferior turbinate body. She was unaware of its presence. There was a history of repeated "gumboils" over the left lateral incisor tooth up to five years ago, when a decayed tooth broke off; the stump was extracted six months ago. The right nasal cavity was atrophic.

Dr. SCANES SPICER said he had seen three cases apparently like the present one. The third one he incised three or four times from the nose, and it had filled up every time. Then he attacked it from under the lip, scraped the cyst out, and packed, and it got well at once. He thought it must have been dental in origin.

Mr. BETHAM ROBINSON suggested that the carious tooth should be extracted, and that boring should be done through the fang. With a little enlargement of the opening he thought it would drain and heal up all right.

Dr. HORSFORD, in reply, said he had hoped to hear whether it was necessary to do anything for the condition; the patient had had no symptoms and no obstruction was caused. Some time ago he removed the stump from the lateral incisor.

CYSTOMA OF THE LARYNX.

Dr. JOBSON HORNE exhibited macroscopic preparations illustrating cystic disease of the larynx. One specimen presented a cyst in the usual situation, namely the lingual aspect of the epiglottis. The tumour, which was relatively of a large size, had occasioned no symptoms during life. The preparation had been made by the formalin method, and the clinical appearances of the cyst had been well preserved. Another specimen showed a condition over one arytenoid region which clinically simulated a cystoma, and from which it had to be differentiated, the condition being occasioned by œdema and not by the obstruction and subsequent distension of a gland-duct as in true cystoma. The specimens were of special interest in connection with the case shown by Dr. Cathcart at the previous meeting.

A CASE OF TUMOUR OF THE PALATE.

Shown by Dr. W. H. KELSON. The patient, a woman aged sixty-five, had noticed a tumour of the palate about six or eight weeks, but thought it had probably existed longer. Five or six years ago she had had stumps of teeth taken out near to the origin of the tumour.

On examination a button-shaped tumour about an inch in diameter was found at the junction of the hard and soft palates on the right side, extending inwards from the alveolar margin; it was firm in consistency and movable on the subjacent structure, and the mucous membrane, though tightly stretched, was movable over it. No enlarged glands were to be felt.

Mr. P. DE SANTI thought it was simply a fibro-adenoma, and that it would shell out easily.

Dr. H. SMURTHWAITE said he removed, a year ago, a similar tumour from a woman who had had it ten years. A circular incision was made, the finger placed under it, and it shelled out. A section was made, and it was found to be fibro-adenoma.

Mr. ROBINSON inclined to the view that it was an endothelioma.

The PRESIDENT said that in the case which he showed two meetings ago the tumour was larger and much more fixed. The woman refused to have any operation done.

Dr. JOBSON HORNE said that some years ago he had had a case which presented similar clinical appearances; the tumour came away quite easily. He was unable to say, without reference to notes, what its precise microscopic appearance was. He hoped Mr. Kelson would allow members to see a section of the tumour in his case after removal.

Mr. KELSON said, in reply, that though opinions as to the nature of the tumour varied, there seemed to be agreement as to the best treatment.

He would bring forward the specimen. The patient said she had noticed it for quite six weeks.

A CASE OF ULCERATION OF THE EPIGLOTTIS AND OF THE BASE OF THE TONGUE.

Shown by Mr. W. H. KELSON. The patient, a man, aged sixty-nine, had suffered from difficulty in swallowing and loss of flesh of about nine months' duration.

On examination there was found to be a mass in the region of the base of the tongue, involving the epiglottis, in which situation ulceration had taken place. Neither cord moved well. There were a number of enlarged glands in the carotid and submaxillary regions.

Mr. ROBINSON said it was a case of malignant disease of the back of the tongue, creeping back to the epiglottis, with enlargement of glands. There was not any doubt as to its nature, and he did not advise operative procedure.

A CASE OF TERTIARY SYPHILITIC LARYNGITIS IN A MAN AGED TWENTYNINE; QUESTION OF TREATMENT.

Shown by Mr. DE SANTI. The patient came to Mr. de Santi's clinic some six months ago with a history of hoarseness, pain on swallowing, cough, and loss of flesh. On examination the epiglottis was seen to be red, infiltrated, enlarged, and bilobed in shape. A view of the larynx could not be obtained on account of the size and shape of the epiglottis. The appearances and history suggested tubercle, but the patient had a marked condition of advanced tertiary syphilitic glossitis. Examination of the chest and sputum on several occasions was always negative. The patient was put on iodide of potassium, which was gradually increased up to 30 gr. daily, but little improvement followed. He also had a course of iodide of mercury, and also of sarsaparilla, but really never at any time reacted to the drugs used. At one time Mr. de Santi thought there might be mixed infection of tubercle and syphilis, but, having watched the man for some months, was convinced the disease was entirely of specific origin.

He brought the case forward for views as to further treatment. These cases, if left alone, tended to end in contraction and stenosis of the larynx, a condition to be prevented by every means possible.

Dr. STCLAIR THOMSON said one could not get a good inspection of the inside of the larynx, but there was slight ulceration, and the man might have tubercle grafted on to his syphilis. Iodide and mercury had only been given him by the mouth, and no case of syphilitic disease

of the larynx should be despaired of until mercury had been given by injection or by inunction. Many such cases resisted treatment by the mouth, and some even did not yield until tracheotomy had been done, thus affording rest to the part.

Dr. A. LIEVEN regarded the case as wholly syphilitic; ulceration must be expected in a case which had persisted so long. Iodide and mercury should not be used at the same time when calomel was injected, as the latter did not agree with the iodide; there was produced much local irritation, and sometimes swelling of the mucous membrane, which might be fatal in such a case as the present. He recommended tracheotomy, to keep the part at rest. In any case it might have to be done later, because of the narrowing of the part due to contraction. That occurred in a case in which the larynx yielded very well to treatment, but the air-passages became so narrow that tracheotomy had to be performed. He used a suspension of 1 part of calomel in 10 of vasenol, a new preparation of paraffin, which was the least irritating vehicle he knew. The dose was half a sixteen-minim syringeful, but a very small dose should be given at first, one third of a syringeful, as the idiosyncrasy of the patient might be intolerant of mercury, and when once it had been injected it could not be got out again.

Mr. DE SANTI, in reply, expressed his gratitude for the opinions expressed, and said he would advise the man to have tracheotomy done and have calomel injections. The patient was very anxious for relief.

A CASE OF LARYNGEAL DISEASE (? SYPHILITIC).

Shown by Dr. J. B. BALL. The patient is a married woman aged forty-seven. She has had ten children, of whom four were stillborn, and she has had one miscarriage, at four and a half months. She states that she has always had good health. She has had some hoarseness of voice for the last six months, and some increasing dyspnoea on exertion for about two months. There are two small scar-like depressions on the soft palate, but she has no recollection of ever having had a sore throat. In the larynx there is a pale glistening swelling situated over the left vocal cord. The appearance of this swelling is consistent with its forming part of a swollen oedematous cord, or with its being a swelling protruding from the ventricle and covering the cord. There is distinct subglottic swelling on this side of the larynx. The left vocal cord is fixed. The patient was seen for the first time a couple of days ago and has had no treatment.

Mr. HERBERT TILLEY thought the swelling was on the surface of the anterior half of the left vocal cord. Opposite that swelling one could see the right vocal cord, which also seemed slightly oedematous; it had not the clean-cut appearance of the normal vocal cord. Under both cords could be seen a swelling, which he thought was a subglottic hyperplasia. There was a strong history of syphilis, and he would treat the case from that point of view before actively interfering with the larynx. Indeed, he did not know what active interference could be carried out unless it were

touching the swelling on the left vocal cord with the galvano-cautery. This would cause much irritation, and he did not think the result would be a beneficial one.

Dr. FITZGERALD POWELL said in their present knowledge of the history of the case, and the sputum as yet not having been examined, no one could give a very decided opinion as to its nature. There appeared to be a growth coming out of the ventricle and overlapping the cord. He thought the case was most probably syphilitic, but the possibility of tubercle should be considered and the sputum should be examined.

Dr. SCANES SPICER said his own view was that of Dr. Powell, relying on the general appearance of the mass and that the posterior wall was involved at the same time; but he did not feel confident about it.

Dr. STCLAIR THOMSON said there was much subglottic infiltration on both sides and marked subglottic stenosis. He thought the condition of the cords was due to their being pinched by the infiltration going on above and below. He thought it could scarcely be tubercle, because such an extensive deposit of that would have already broken down. The woman required tracheotomy and similar treatment to Mr. de Santi's case. Early tracheotomy tended largely to prevent the scarring and stenosis of which Dr. Lieven had spoken. He had done many cases in which tracheotomy and treatment with mercury, *via* the skin, had saved that stenosis which otherwise would have been likely.

The PRESIDENT, in reply, said he had felt doubtful about the nature of the case, and even as to what the gelatinous swelling on the left side was. He concluded that it was more or less a part of the left vocal cord. He agreed that there was some subglottic infiltration on both sides. The history pointed to syphilis; she had had four stillborn children and some very early deaths among the children born alive. Also on the soft palate there appeared to be two depressed scars, though she said she had never had a bad throat all her life. He had only just seen the patient, and should have put her upon iodide of potassium at once but for the dyspnoea, which might have been increased by that drug. He did not propose to start with mercurial injections, but would take her into the hospital, and she would probably rapidly respond to syphilitic iodides if the case were syphilitic.

A CASE OF EPITHELIOMA OF LARYNX SHOWN ON NOVEMBER 2 AND DECEMBER 7, AND TREATED BY A VACCINE OF MICROCOCCUS NEOFORMANS SINCE THE FORMER DATE.

Dr. SCANES SPICER again brought this case for inspection by the members of the Society, that they might determine what, if any, progress had resulted in the local growth and general condition. The injections had been continued as before in the Inoculation Department under Sir A. B. Wright. Dr. Spicer's view was that the malignant mass was smaller, and was based on the fact that a much more complete view of the larynx was possible than on the previous occasions. The surface was cleaner, the patient swallowed better, and felt and looked well. In view of the opinion expressed by some members he had taken the

opinion of his colleague, Mr. A. J. Pepper, as to the possibility of completely removing the diseased parts, and that surgeon had negatived that possibility with any reasonable probability of success, owing to the extension of the growth on to the pharynx and the glosso-epiglottic fold. That view was the result of experience gained together in several cases during the past eighteen years.

Dr. WATSON WILLIAMS (who had had to leave early) had asked Dr. S. Spicer to state that he considered that at all events the rate of growth over the two months had been very materially retarded, as compared with his previous observation of the case.

Mr. ROBINSON reminded members that when the case was last shown he said that although it was cleaner than before it had increased in size. But he did not think it had increased appreciably since then. If the patient consented to operation, what was to be done? He did not advocate operation. The growth was spreading out in the pyriform fossa and over to the other half of the larynx; moreover there were such marked hard glands that it was not a fit case for operation.

Mr. DE SANTI felt certain that nothing could be done from the point of view of operation. The main consideration in such cases was whether the whole disease could be extirpated, and if this could not reasonably be done the patient should be left alone. In the particular case under consideration there was not the slightest hope of being able to remove the whole disease.

A CASE OF TONSILLAR DISEASE WITH CONSIDERABLE ENLARGEMENT OF THE CERVICAL GLANDS.

Shown by Dr. C. A. B. HORSFORD. The patient attended hospital on December 6, 1906, on account of soreness on the right side of the throat, of six weeks' duration. Two lumps had been noticed by the patient on the right side of the neck the day before admission; they were hard and painless. On December 11 the right tonsil was removed; severe haemorrhage followed for a few hours afterwards and recurred five days later. The patient had an attack of shivers two days after the operation, and there had been continuous swelling of the neck since.

Mr. ROBINSON said the question was raised whether the tumour of the tonsil recently removed was syphilitic or not. He did not think there would be such a glandular swelling in the neck associated with chancre. Therefore it must now be considered as to whether there was some very slow phlegmonous condition or a malignant growth. His view was the latter, and that nothing could be done for it. It extended freely down to the side of the pharynx, filling the pyriform fossa on that side. It even spread over the back of the cricoid. It was also very hard, and if it were inflammatory there certainly should be signs of oedema over it.

Dr. LIEVEN thought it impossible to decide whether it was a primary chancre, because that condition tended to heal within two or three months,

whether treated or not, and it did not leave a large scar. The sore which it made was not of the tissue it was in, but of its own tissue. But against syphilis was the fact that there were no secondary symptoms; and primary sores were very painful, whereas this man had not experienced much pain. Before operation he would try mercurial inunction for a few days. If no benefit resulted, he would make an incision in case there might be pus present; but the incision would not settle whether it was or was not chancre.

Mr. DE SANTI agreed with Mr. Robinson as to the nature of the glands. He did not think they could possibly be syphilitic; they were probably malignant. There was a large, hard, extensive mass of glands, with some tenderness in parts, whereas in the case of a chancre of the tonsil there was enlargement of the glands in the neck which, though very hard, were discrete, as a rule, and movable.

Mr. STUART Low said he had carefully examined the case, and he watched a similar case two years ago, when it turned out to be a deep-seated phlegmon, with pus under the fascia. Dr. Grant operated upon this case. In another case a man came from a hospital, where removal of his tonsil had been carried out, perhaps too thoroughly, and probably the pharyngeal fascia had been wounded, as pus burrowed under the deep fascia. This being softer in the centre than in other parts, and the history being short, he advised incision.

Mr. ATWOOD THORNE considered that the case was probably malignant, but that it might possibly prove to be merely inflammatory, and that an exploratory incision should be made.

Dr. JOBSON HORNE said it was difficult to express an opinion upon what one had not seen—namely, the original condition of the tonsil. He had seen a precisely similar glandular condition secondary to primary chancre of the tonsil. He would try antisyphilitic remedies before operating.

Dr. FITZGERALD POWELL said it was not possible to say with certainty what the nature of the lesion in the tonsil was, which appeared to be responsible for the enlargement and hard, brawny condition of the glands; it must not be forgotten that in association with this there appeared to be a fairly general infection of the larynx. The arytenoid on the right side and the right cord appeared to have their movement impaired. He thought the condition was due to specific infection; the man was in a very weak condition, very pale and anaemic. He should be kept in bed, fed up, and put on anti-syphilitic treatment in combination with iron. If the case was malignant, it certainly, he thought, was inoperable.

Dr. SCANES SPICER said that, whatever else was done, the teeth should be seen to and the mouth made aseptic.

Dr. DAVIS thought it worth while to make an exploratory incision under an anaesthetic. There might be pus, as apparently there was oedema and deep fluctuation. If the glands were inflammatory, the trouble would be likely to extend into the larynx. He lately saw in hospital an urgent case of a man who had inhaled a husk while chaff-cutting. The foreign body had probably lodged in the pyriform fossa, but was invisible. There was great oedema under the chin and distortion of the larynx, but it was simply inflammatory oedema. He advised the application of three or four leeches to the part.

Mr. HERBERT TILLEY said he had heard there was an evening rise of temperature, suggesting that the swelling might be of an inflammatory nature. In view of the differences of opinion expressed, he thought it

would be most instructive if the after-history of the case could be brought before a future meeting of the Society.

Dr. HORSFORD, in reply, said that a week ago the appearance suggested syphilis. He had seen a similar case in a girl who had a sloughy-looking unhealthy ulcer on the tonsil, with a large swelling of the glands, and she later developed secondary symptoms. It was not more than eight weeks since this man complained, so that there had scarcely been time to exclude the likelihood of secondaries appearing. He believed it was primary syphilis, the unhealthy tonsils accounting for the two attacks of haemorrhage after the operation and the increased swelling of the neck—a septic complication—it had been too acute for a malignant condition.

THE SPECIMEN FROM A CASE OF FIBROMA OF THE LARYNX SHOWN AT THE MEETING ON DECEMBER 7, 1906.

Shown on behalf of Dr. G. C. CATHCART by Dr. JOBSON HORNE. In the absence of Dr. Cathcart, Dr. Horne said that subsequent to the last meeting he had been asked by Dr. Cathcart to see the case with him with a view of deciding upon the course of treatment to be adopted. Upon a more thorough examination under cocaine it became apparent that they had to deal with a very tough and solid tumour attached by a very broad base to the summit and outer aspect of the ary-epiglottic fold, the cystic appearances subsiding under cocaine. It was decided not to attempt a removal by means of an endo-laryngeal operation. The tumour was successfully removed through an external incision, and was now exhibited to the Society.

The PRESIDENT reminded members that every one seemed to have seen the case last time, but nobody suggested it was not a cyst, yet it now was shown to be a solid tumour.

Dr. FITZGERALD POWELL asked whether the singing voice had suffered by the removal. He did not think it would.

Mr. ROBINSON asked whether members could be told what form of external operation was done.

Dr. ATWOOD THORNE asked if the patient and the specimen could be shown later.

Dr. JOBSON HORNE explained that Mr. Cathcart was away, and no doubt he would report more fully on his return.

SPECIMENS OF CARTILAGE AND BONE REMOVED BY SUBMUCOUS RESECTION OF THE SEPTUM.

Mr. HERBERT TILLEY showed a number of specimens which illustrated the ease with which the deviated cartilage could be removed with Ballenger's swivel knife. Luc's ethmoidal forceps with fenestrated blades were shown and recommended for the

removal of the ethmoid and vomerine irregularities. A large self-retaining fenestrated nasal speculum after the Thudicum pattern was exhibited; it was very useful for keeping aside the flaps of mucous membrane while the bony portion of the deviation was being removed.

One Hundred and eleventh Ordinary Meeting, February 1, 1907.

J. B. BALL, M.D., President, in the Chair.

HENRY J. DAVIS, M.B. }
W. JOBSON HORNE, M.D. } Hon. Secretaries.

Present—26 members and 1 visitor.

The minutes of the previous meeting were read and confirmed.

The following gentlemen were elected as ordinary members:

H. B. TAWSE, M.B.Aberd., F.R.C.S.
HENRY CURTIS, M.D.Lond., F.R.C.S.

The following communications were made:

A CASE OF FIXATION OF THE LEFT VOCAL CORD IN A WOMAN, AGED FORTY-FIVE.

Shown by Dr. FURNISS POTTER. The patient was a single woman and a teacher, who stated that fifteen years ago she had had a goitre removed at St. Thomas's Hospital, that she had known the "left side of her larynx had been paralysed" for at least the last four years, and that she had lost her voice a year ago, comparatively suddenly—*i.e.*, she felt it to be weak one day, and within a few hours lost the voice completely, being reduced to speaking in a whisper. This had continued up to the present, and was the only symptom complained of. She had, however, conceived the idea that she had a growth in her larynx, and it was for this that she sought advice.

Laryngoscopic examination showed that the left cord was fixed in, or near, the middle line. The right cord was freely movable, but repeated attempts to make the patient phonate failed to elicit any nearer approach to voice production than a grunt, or to bring the right cord into apposition with its fellow, although it came into close approximation. The region of the left arytenoid was distinctly swollen as compared with the opposite side.

Examination of the chest revealed signs indicating old tuberculous trouble in the right upper lobe, but no evidence of present active mischief. It was stated by the patient's medical attendant that she had lost flesh during the last few months. Potassium iodide had been administered for a fortnight, but with no appreciable result.

Dr. Potter was inclined to the opinion that the aphonia was functional in character. He took this view because of the history, and because he did not consider that, from the appearances in the larynx, there was physical reason sufficient to account for such absolute loss of voice.

As regards the fixation, injury to the recurrent nerve on the occasion of the removal of the goitre was a possibility to be thought of, but he, personally, would suggest that the fixation was due to old tuberculous infiltration round the crico-arytaenoid articulation, which had been arrested and replaced by fibroid material, with consequent locking of the joint.

Mr. BETHAM ROBINSON said he considered that the want of approximation and the air waste were due mechanically to the position of the cartilage of Wrisberg. When the cord tried to come over, it impinged on the cartilage of Wrisberg, which was in front of the one on the other side; and when the patient tried to phonate, the air waste was obvious.

Dr. F. W. BENNETT thought it was probably the result of an old paralysis of the cord, and the aphonia was due to the cords not coming into contact. Possibly the difficulty in approximating the cords was due to the debilitated condition of the patient. He suggested that perhaps the paralysis of the cord dated from the time of operation, but that until the more recent impairment of general health, the patient was able to bring the cords sufficiently into contact to produce clear vocal tone.

The PRESIDENT said he presumed that the term "fixation" was meant to include the result of paralysis. No doubt the left vocal cord was fixed by paralysis, but the question Dr. Potter raised was: why was her voice so much weaker than in most cases where one cord was paralysed? He believed Dr. Potter referred to an operation which had been performed.

Dr. POTTER, in reply to questions by the President, said he used fixation as a general term. The fixation he looked upon as the point of interest in the case, together with the aphonia. The patient had a goitre removed fifteen years ago, but had suffered from loss of voice during the last year only.

The PRESIDENT thought it most likely that Dr. Bennett's suggestion was correct. He believed the present weakness of the voice to be functional. There was not such good approximation of the cords as there should be. The cough was fairly loud, though gruff, and, during coughing, he thought it likely she brought the cords closer together than when asked to phonate.

Dr. H. SMURTHWAITE suggested that, following the operation for the removal of the goitre, adhesions had been left, and that the recurrent laryngeal nerve had become involved in them.

Dr. DUNDAS GRANT thought there must be something more than paralysis of the left vocal cord, because the rule was that, as time went on, the voice improved, through the compensatory action of the muscles on the other side bringing the healthy cord over the mid-line. He greatly favoured the idea that the vocal condition was now functional. Having been told that the vocal cord was paralysed, the patient might have an impression that the voice ought not to be operative.

Dr. POTTER, in reply said that he could hardly think that the prominence of the cartilage of Wrisberg would interfere to such an extent as to completely prevent phonation. Looking at the swollen condition of the arytenoid region, it was reasonable to suppose that this had been the seat of tuberculous infiltration, which, like the lung trouble, had been arrested in its progress, and that the crico-arytenoid articulation had been locked by fibroid material. He was much inclined to look upon the aphonia as functional. The patient stated that she had lost her voice comparatively suddenly. She had noticed it to be weak one afternoon, and within a few hours had completely lost it. He (the speaker) had seen the right cord come very nearly into apposition with its fellow, and did not think there was sufficient mechanical obstacle to prevent phonation. He had applied the Faradic current, but had failed to make the patient phonate. Notwithstanding this, he adhered to his opinion that the disability was functional, and that with perseverance the power to use the voice might be demonstrated.

A CASE OF TUMOUR OF THE NASAL SEPTUM.

Shown by Dr. FURNISS POTTER. The patient was a married woman, aged thirty-one, who had complained of increasing nasal obstruction on the right side for the last year, with occasional slight bleeding, chiefly on blowing the nose. On examination a red, vascular, sessile tumour was seen, about the size of a horse-bean, on the right side of the anterior part of the septum. It was soft, easily pierced by a probe, which produced some, but not profuse, bleeding. It was suggested that the growth belonged to the group described as "bleeding polypus of the septum."

Mr. C. A. PARKER thought that if cocaine were applied and a good view obtained, the inferior turbinal would be seen to be also involved. He regarded it as tuberculous infiltration of the nature of lupus.

The PRESIDENT thought the condition was extensive, and went a long way back. The septum was deflected to that side. If, as Mr. Parker thought, the lower turbinal was also involved, anything like scraping would be sure to cause adhesions. He suggested doing what he did in a case of lupus a few years ago. The septum was deflected and the passage was very narrow on the affected side, and both the lower turbinal and the septum were affected with lupus. He removed the diseased mucous membrane of the septum and the deflected cartilage, leaving the mucous membrane of the opposite side intact, thus correcting the septal deformity. He scraped the diseased lower turbinal. No adhesions resulted.

Dr. STCLAIR THOMSON thought there could scarcely be any doubt that it was lupus. He suggested the value of applying adrenalin. If that

were placed over a lupus surface like the present the tissue was rendered anaemic, except at the deposit, and then it stood out as a distinct apple-jelly mass. He came across that in a girl who had lupus of the inferior turbinal. She had a deviated septum, and in the out-patient room it was thought to have a normal appearance. Having, it was supposed, arrested the lupus of the inferior turbinal, she had adrenalin and cocaine applied before resection, and then the "apple-jelly" infiltration became so distinct that he did not operate, as lupus was one of the contra-indications to septum resection given by Killian. He had watched her since, and the condition had developed. He would like to hear whether there was any recurrence in the President's case. He suggested the application of the galvano-cautery as an alternative treatment, not applied over a large surface, but applied deeply at several points, so as to produce scar tissue.

The PRESIDENT, in reply to Dr. StClair Thomson, said that, so far as he knew, there had been no recurrence. He saw the patient a few months after the operation, but that was five or six years ago. He was not aware of there being any contra-indication. In the present case, whether one used the galvano-cautery or any such treatment, he thought there were sure to be adhesions, unless the deformity of the septum were corrected.

Dr. POTTER, in reply, said that his own opinion had been divided between tubercle and "bleeding polypus," but his inclination had been rather towards the latter. He intended to remove the growth, together with the cartilage underlying it, by a submucous resection, *i. e.* by dissecting off and preserving the mucous membrane of the opposite side of the septum—in fact, what was known as the Krieg Boenninghaus operation. He proposed to do this, in spite of Dr. StClair Thomson's caution as to possible recurrence. The affected part was clearly circumscribed, and could be completely removed. He, the speaker, had not observed anything abnormal in the inferior turbinal.

A CASE OF A LARGE TUMOUR IN THE SOFT PALATE AND THE LEFT WALL OF THE PHARYNX; OPERATION JANUARY 15; SPECIMEN; MICROSCOPIC SLIDE; PATHOLOGICAL REPORT.

Shown by Mr. STUART Low. He said that this woman, aged sixty-five, came to the hospital complaining of some pain in the throat and difficulty of swallowing, which had increased very much during the last fortnight. She had been conscious of some obstruction existing in her throat for about eighteen months, but this had become much more marked since six weeks ago. There was no swelling nor glandular enlargement to be felt from the neck. The tumour was seen to occupy the whole of the left half of the soft palate and half of the right side, and was incorporated with the palate from the middle of the left half right over to the right side. It also occupied the left side of the pharynx between the palatal pillars. The swelling was very firm in consistency, and the soft palate was stretched over it.

At the operation for removal laryngotomy was first performed,

as the tumour seemed fleshy and vascular, and free haemorrhage was anticipated; the pharynx was then firmly plugged with sponges. Having split the soft palate longitudinally the tumour was shelled out from the pharyngeal wall, but had to be dissected away from the structure of the palate, to which it was found to be firmly attached. There was considerable haemorrhage. Three stitches were inserted into the soft palate, and the laryngotomy tube removed at once. She made an uninterrupted recovery.

REPORT BY DR. WYATT WINGRAVE.

"The growth is a typical endothelioma, consisting of a homogeneous stroma, enclosing groups of cells, which are arranged in cylinders (hollow and solid), becoming alveolated and fused. In some parts they have a laminated arrangement, and are calcified. There are no marked mitotic changes in the nuclei. In texture the growth was soft and friable, except in one part, which was firm and tough owing to excess of stroma. It is fairly vascular and encapsuled."

Mr. ROBINSON thought there was no doubt that it was endothelioma. It showed definite cells round the vessels, and in places there was mucous softening, such as one found in similar tumours of the parotid.

A CASE OF LARYNGEAL TUBERCULOSIS.

Shown by Mr. BETHAM ROBINSON. The patient, a woman aged thirty-one, married ten years, had had frequent loss of voice in winter for ten to fifteen years. Now hoarseness for one year, with some dry cough, and only a little watery expectoration. She had got thinner lately, but otherwise felt and looked well.

The larynx showed a thickening posteriorly, with almost symmetrical warty granulations in the interarytaenoid region. Some discolouration of both vocal cords, the right one being irregular. The epiglottis was normal. There were no physical signs in the chest. She has had six children, of which only two are alive, the rest dying shortly after birth. There had been one miscarriage. Before coming under Mr. Robinson's care she had been treated with potassium iodide, on the supposition the condition was syphilitic, but without any improvement. Her father had phthisis.

Mr. H. BARWELL thought the appearance was very suspicious of tuberculosis. There was a large, shiny, pale, oedematous-looking swelling of

the right cord, as well as the pale outgrowths in the interarytænoid space. It often happened in such cases that no physical signs could be detected for some time; and one could not diagnose the absence of tubercle in the chest without observing the temperature for some time, and watching the weight, as well as examining physically.

Dr. W. H. KELSON thought the possibility of it being papilloma should not be lost sight of, considering that no tubercle bacilli had yet been found, and that the lungs showed nothing. She seemed to have a very fair voice, and, for the quantity of the growth, if it were tubercle he did not think the voice would be so good, and he would have expected more infiltration.

Dr. ATWOOD THORNE thought it would be a mistake to rush to the conclusion that it was tubercle. The two little white, currant-like bodies in the interarytænoid space were the chief feature in the case; there was nothing suggestive on either cord.

The PRESIDENT said he thought there was some swelling of the right vocal cord.

Dr. STCLAIR THOMSON thought it would be a great misfortune if it were not concluded that the case was tubercular. That interarytænoid appearance in a woman who was not syphilitic, and not a drinker, was characteristic of tubercle. There was distinct infiltration of the vocal cord and loss of substance over the vocal process; she was losing weight, felt weak, and sweated a good deal. He thought the case should be at once treated on the assumption that she had tuberculosis.

Mr. ROBINSON, in reply, said his remark about tubercle bacilli was that the report had not yet been received, not that the bacilli could not be found. He had noticed the swelling of the right vocal cord, which increased the probability that it was tubercle.

NOTES ON THE PROGRESS OF A CASE OF ADENITIS SHOWN AT THE PREVIOUS MEETING, JANUARY 4, 1907.

Report by Dr. P. H. ABERCROMBIE. The case proved to be one of deep-seated abscess. On January 12 the swelling in the neck was incised, and fully half an ounce of pus escaped, in which Dr. Wyatt Wingrave found the *Streptococcus pyogenes*. The following are the notes of the case: The patient, aged forty-nine, a tobacconist by trade, was seen at hospital on Thursday, December 6, 1906. He complained of "sore throat," confined to the right side and low down, and also of "pain on swallowing" of about six weeks' duration. He knew of no cause for his throat affection. In spite of treatment his throat did not improve, but rather tended to get worse, and when first seen the tonsils were enlarged, especially the right one, which latter presented the appearances of chronic lacunar disease. The uvula was very long, and the teeth were far from clean. At this time there was no lymphatic glandular enlargement. There was some degree of nasal obstruction present from septal deviation. The

removal of the tonsils and shortening of the uvula was advised, and five days later (December 11) this was carried out. On the morning of the operation day the patient drew attention to two hard, painless swellings, evidently glandular, near the angle of the jaw on the right side, and which he had first noticed only a day or two before. On his return home from hospital a few hours later he bled a good deal, and he again lost blood five days after this, when he had an attack of "shivers," followed by sweating. On December 22 (*i. e.* eleven days after the operation) he went out for the first time, and he returned to business on December 24. The throat, however, never got quite well and he came to hospital on January 3, when the glandular enlargement was very much greater, and the right tonsillar region was swollen, red, and unhealthy-looking. There was also considerable œdema affecting the right side of the larynx (epiglottis, aryepiglottic fold, arytenoid, and ventricular band) and interfering with the action of the right vocal cord. The temperature was 99° F. Dr. Abercrombie considered the condition was a septic one, probably coccal, and that the dirty state of the teeth might explain the source of infection. A swabbing from the right tonsil region was examined by Dr. Wingrave, who reported: "Agar inoculation from fauces afforded pure growth of *Streptococcus pyogenes*." The patient entered the hospital as an in-patient on January 4, when his temperature was 97° F. The next day it reached 99.8° F., the following day 101.4° F., when he developed in his left great toe-joint what he called "gout," and what certainly answered to the usual description of such given in the books. In addition to this, however, he had pain in the right ankle, which he described as being different from "gouty pain." The day following this the temperature was 102° F., and for the next few days it kept between 100° F. and 101° F. On January 10, at 4 p.m. (four hours after the patient's dinner), Dr. Wingrave examined his blood and reported that "no bacteria were found; the blood count showed leucocytes at 4500 per cubic millimetre." This is noteworthy, considering the fact that pus must have been present in the neck at that date. Two days later (January 12) an incision was made into the swelling, and quite half an ounce of pus escaped. This was examined by Dr. Wingrave, and was found to contain the *Streptococcus pyogenes*. The day following he sweated profusely, but there was no rigor, nor did he have any shivering attack during his residence in hospital. On the 15th the temperature suddenly shot up to 104° F.; he again perspired very freely, and he complained of some difficulty and pain in swallowing, with

slight obstruction to breathing. The laryngeal œdema had increased considerably, so much so, indeed, that it was thought tracheotomy might be required. It was found to be necessary to make a counter-opening lower down in the neck to ensure better drainage. Next day he was much better and perspired freely. The dyspnoea had gone. He swallowed quite comfortably and his temperature had subsided. On the 20th (four days later) he was suddenly attacked with acute pain in the right wrist, which was regarded as evidence of septic arthritis. Anti-streptococcic serum was then used. He had four injections in all, two on January 21 and two on the 22nd, each injection consisting of 10 c.c., but the benefit from this was not very marked. He has progressed favourably, if slowly, since then, and he is now convalescent, and will soon be able to leave hospital. With regard to his past history, his only trouble appears to have been "gout," of which he says he has had about twenty attacks, the first one being in 1883, when the left great toe-joint was the one involved. Since then he has had an attack, always in the same joint, about once a year, and usually in the spring. In this connection it is interesting to note that he has always consumed a good deal of malt liquor, and has been in the habit of eating butcher's meat twice a day. He smokes at least 3 oz. of tobacco a week. He has never had any form of venereal disease, and apart from his "gout" he has always been a very healthy man. He admits having neglected his teeth, and their appearance certainly confirmed this statement. Dr. Wingrave again examined his blood on January 22—ten days after the opening of the abscess—and again failed to find any streptococci, but there was on this occasion a marked increase in the number of leucocytes—14,500 per c.m. (3 p.m.). In the deposit round the teeth were found Spirochæte dentium, streptothrix, diplococci, and yeasts in great abundance. While in the hospital the patient took quinine and iron. The teeth and gums were cleansed with a 1 per cent., warm solution of lysoform, and the tonsillar region was painted daily with menthol in almond oil (20 per cent.).

With regard to the suspicion of malignant disease, Dr. Abercrombie thought the short course of the affection, viz. about two and a half months, was against this view. As to syphilis, no secondary symptoms have appeared, and a course of mercury, prescribed by his medical attendant, produced no beneficial effect; indeed, during its administration the throat steadily got worse. When the patient was first seen his medical attendant thought it might be a case of herpes of the tonsil, as there were several spots

which looked like ruptured vesicles, and the swelling was slight but the pain great.

The PRESIDENT said a few of the members at the last meeting held that it was inflammatory, but the majority who spoke believed that there had been a primary sore on the tonsil, and that the adenitis resulted from this.

Mr. ROBINSON said he was pleased to hear what had been the result in the case. He had expressed the opinion that it was malignant, and he had learned something now that it had proved not to be.

Mr. HERBERT TILLEY asked whether there was an actual abscess, or simply points of suppuration in the glands.

Dr. ABERCROMBIE, in reply, said there was an actual abscess. No secondary syphilitic symptoms had appeared, and, during a course of mercury, prescribed by the patient's medical attendant, the throat condition steadily got worse.

A CASE OF ABNORMALITY OF THE NECK.

Shown by Dr. KELSON. The patient, a man, aged twenty-one, complained of his neck growing to one side; he thought there had always been something wrong, but it had become more obvious lately. On examination there was found to be a very marked subcutaneous band passing up from the sternal origin of the right sterno-mastoid; at about the level of the cricoid cartilage it appeared to bifurcate, the inner band being lost in a small, doughy swelling in the region of the hyoid bone, whilst the outer division passed backwards, and was lost under the sterno-mastoid; the position of the head was normal, and no abnormality could be detected by internal examination.

Mr. ROBINSON thought it was a thickening in the fascia coming down from the anterior border of the digastric, and fusing with the cervical fascia over the sterno-mastoid. Why it should be thickened he did not know. He knew of no abnormal muscle which occupied that position.

Mr. STUART-Low thought it was the omo-hyoid muscle. The late Professor Hughes had been particular to point out the vagaries of the omo-hyoid, which had much fibrous tissue in it. Probably there was but little muscle in the present one.

Dr. KELSON, in reply, thought it must remain undiagnosed at present. He could not accept the view that it was sterno-thyroid or sterno-hyoid, because he did not think they were found to arise from the anterior surface of the sterno-mastoid. And one could scarcely imagine any injury at birth damaging the sterno-thyroid and sterno-hyoid without also damaging the sterno-mastoid.

A CASE OF ULCERATION AND INFILTRATION MAINLY CONFINED TO THE RIGHT HALF OF THE LARYNX.

Shown by Dr. DUNDAS GRANT. The patient was a girl, aged twenty-one, who complained chiefly of hoarseness of seventeen

months' duration, which had been preceded by a sore throat for one month with pain in swallowing, this soreness continuing for two or three months longer. She first came under the exhibitor's notice about a month ago, when there was some delicate cicatrisation of the left half of the fauces, producing partial adhesion to the posterior wall of the pharynx. There was some degree of tumefaction of the epiglottis, which was intensely red, and on the under surface could be seen an irregular row of very small, translucent granulations, which probably marked the upper limit of a concealed ulcer. The right aryepiglottic fold was infiltrated, its mucous membrane being very superficially ulcerated, this being continuous with a similar condition on the ventricular band. The vocal cord was irregular in outline, and superficially ulcerated at its posterior part. The probable diagnosis made in the first instance was one of syphilis, and iodide of potassium, in doses of 10 to 15 grains thrice daily, had been given for some time; the pharynx improved to some extent, but the ulceration in the larynx had persisted. There were no confirmatory evidences of a specific infection either acquired or inherited, the only thing suggestive of it being the occurrence of a severe sore throat, which lasted one month when she was twelve years of age. The appearances were compatible with those of lupus, but in view of the possibility of its being specific, and, therefore, amenable to treatment, the exhibitor proposed submitting her to a course of mercurial inunctions, and he was desirous of eliciting whether any of the members of the Society considered it contra-indicated.

Dr. SMURTHWAITE said it gave him the impression that it might be syphilitic, considering the posterior pillar of the fauces on the left side had become adherent to the pharynx, and the scarred condition of the latter; but, on the other hand, a lupus could have produced the same. The laryngeal appearance, with its mouse-eaten condition, favoured the view of tuberculosis. Especially was this the case on the right cord and arytenoid joint, and on the glottic surface of the epiglottis.

Mr. BARWELL thought it tubercular rather than syphilitic, but rather of the nature of lupus, though one found it difficult sometimes to draw the line between the two. This case seemed to be a border-line one; the scarring on the pharynx could well be caused by lupus. The mouse-eaten appearance, mentioned by Dr. Smurthwaite, favoured the diagnosis of lupus. He would, however, try mercurial inunction. He asked that the subsequent progress might be reported.

Dr. GRANT, in reply, said he could not see any great objection to trying the effect of mercurial inunctions, watching her carefully during the treatment. If she were not given the chance that afforded, one might be making a mistake.

A CASE OF EXTREME WEAKNESS OF VOICE IN A MALE PATIENT, AGED FORTY-ONE, OF FOURTEEN MONTHS' DURATION, APPARENTLY AS THE RESULT OF A CHILL.

Shown by Dr. DUNDAS GRANT. The hoarseness first came on fourteen months ago, while the patient was acting in very wet weather, and, with very slight fluctuations, it has remained ever since. He was first seen by Dr. Dundas Grant, between three and four months ago; his voice was extremely gruff, and the swelling of the vocal cord was practically identical with what it is just now. There is a slight convexity towards the middle line, but then it was much more overhung by the right ventricular band, a portion of which was removed and found to consist of inflamed tissue. Appearances at first were suggestive of a tuberculous condition, but there is absolutely no physical sign of such disease in the chest, and the sputum has been several times examined, with negative result. Iodide of potassium was given in doses of ten and fifteen grains, three times a day, without any appreciable result, and no history of primary infection is obtainable. The patient went through great exertion, both as a soldier during the war and as a teacher of elocution, before the hoarseness commenced. At present the question is whether it is justifiable to remove a portion of the thickening of the vocal cord for microscopical examination, on the understanding that thyrotomy is to be sanctioned if the results of the examination render it advisable. Galvano-caustic puncture was made on the right cord without any effect, and a small nodule on the edge of the left one was also cauterised, but the voice became still weaker, as if the nodule which was destroyed had taken part in the production of sound.

Dr. JOBSON HORNE asked whether anything in the way of treatment had been done to the left half of the larynx.

Dr. GRANT replied that there was a little inflammatory projection on the surface of the left vocal cord, which he touched with the galvano-cautery. That shrivelled it up. That was ten days ago. The left cord was just as red then, so he thought it was not traumatic.

Dr. STCLAIR THOMSON said he was more impressed with the opposite side of the larynx, where there was an infiltration of the ventricular band: it was so thickened that it concealed the greater part of the vocal cord. Part of it might have been due to surgical treatment, but it had a rough edge, with small, white points. If it was formerly as red as Dr. Grant said, it was probably a very slow-moving tuberculosis. The right cord was succulent, but that might be due to the great amount of work it had had to do.

Dr. JOBSON HORNE thought it was premature to express an opinion

on that larynx at present. If Dr. Grant would show the case again at the next meeting, when the larynx had completely recovered from the local treatment, there would be a better opportunity of judging. He understood the patient was a professor of "voice-production."

Dr. GRANT, in reply, said he had never been able to dismiss from his mind the idea that it was tuberculous, and that was his opinion still. The patient was combatting tuberculosis most thoroughly, by eating largely and living in the open air, and was thus removing one of the diagnostic guides. He hoped members would keep the appearance in mind, and he would bring the patient again. He thought the idea of malignancy could be dismissed, and there was no occasion to remove a bit of the cord for examination.

A CASE OF LYMPHO-SARCOMA OF THE BASE OF THE TONGUE AND EPIGLOTTIS, PREVIOUSLY EXHIBITED; REMOVAL BY LATERAL PHARYNGOTOMY AFTER LIGATION OF ARTERIES; RECURRENCE OF LEFT PORTION.

Shown by Dr. DUNDAS GRANT. The case was shown at the November meeting, on which occasion Mr. Butlin advised that an attempt should be made to remove the growth by a lateral pharyngotomy, the branches of the external carotid being ligatured a few days before. On November 9 the exhibitor ligated the external carotid on the left side, and the lingual and facial arteries on the right. The result, so far as haemorrhage was concerned, quite confirmed what Mr. Butlin had said, and on the 12th the pharynx was opened on the right side, the hypoglossal nerve being retracted upwards and the disease removed, as was thought, completely, with hardly any haemorrhage. Two secondary haemorrhages occurred on the 17th and 19th, which caused some anxiety, but a rectal injection of gelatine was administered at the time of the second one, and no further haemorrhage took place. On the left half of the site of the growth a recurrence has taken place. Arsenic has been given in increasing doses, and two interstitial injections have been made of 5 minims of a 1 in 15 emulsion of papayin. These injections have caused no reaction, but the result remains to be seen.

Dr. GRANT said that since the recurrence he had given two injections of papayin into the substance of the growth.

Mr. ROBINSON asked which vessels Dr. Grant had ligatured.

Dr. GRANT replied that he ligatured the external carotid on the left side and the lingual and facial on the right side. The patient was now taking arsenic.

CASE OF ULCERATION OF THE RIGHT TONSIL IN A MAN, AGED THIRTY-TWO.

Shown by Mr. CHARLES A. PARKER. The patient was first seen three weeks ago, when he complained of pain and discomfort of three weeks' standing. There was then an ulcer on the upper part of the right tonsil, rather larger than a sixpenny bit, and covered with a dirty grey slough. The whole tonsil was enlarged and somewhat hard. One or two slightly enlarged glands could be felt in the neck. Since then the ulcer had greatly increased in size, both superficially and deeply, and there had been great loss of tissue; moreover, the glands had become greatly enlarged, tender, or matted together. The question raised was that of the diagnosis; was it syphilitic? and, if so, was it a primary chancre or tertiary ulceration? Mr. Parker had at first thought it was a primary syphilitic lesion, and had put the patient on hydrarg. c cret., but in spite of this the condition had become so much worse, and there was so much loss of tissue that he now doubted the diagnosis.

The PRESIDENT said he gathered that the patient had not had much treatment; he had had mercury for a fortnight. He thought it was probably tertiary ulceration of the tonsil, and one could not say it had resisted treatment unless iodide of potassium had been given. There was much adenitis, but the septic condition of the tonsil would explain this.

Mr. ROBINSON supported the President's suggestion as to treatment; he thought it was tertiary syphilis, *plus* sepsis.

Mr. PARKER, in reply, said he had not put the patient on iodides, because when he first saw him the evidence was in favour of a primary sore, and therefore mercury was prescribed. He would now give large doses of iodide of potassium, combined with mercurial inunctions.

A CASE OF EPITHELIOMA OF THE TONSIL.

Shown by Mr. HAROLD BARWELL. The patient was a man, aged fifty-nine, with a history of syphilis thirty years ago. He had noticed something in the throat for six months. There was no pain and no palpable enlargement of glands. The growth was hard and involved the left tonsil; it did not appear to go deeply, but had spread rather extensively on the surface on to the palate and anterior pillar. The opinions of members were requested as to the advisability of operation.

Mr. ROBINSON said it was, no doubt, epithelioma, and he advised Mr. Barwell to operate on it. The whole of it could now be got away; there were apparently no enlarged glands in the neck. Still, the neck should be opened, and any small glands taken away. •

**PARISIAN SOCIETY OF LARYNGOLOGY, OTOLOGY,
AND RHINOLOGY.***Meeting held January 11, 1907.*

Dr. WEISSMANN *in the Chair.*

CASE OF SPASMODIC CORYZA, TREATED BY MEANS OF POLLANTIN.

BY DR. PAUL LAURENS.

The author narrated the case of a patient suffering from spasmotic coryza, which had resisted all the usual treatment and was cured very rapidly by intra-nasal insufflations of dry, powdered pollantin, according to Dunbar's method. The concomitant conjunctivitis also yielded to the application of the same powder.

CONTRIBUTION TO THE SURGICAL OPENING OF THE BULB OF THE JUGULAR AFTER LIGATION OF THIS VEIN, AS TREATMENT FOR PYÆMIA OF OTITIC ORIGIN.

BY DR. LUC.

The author narrated a case of a young man, aged eighteen, in whom mastoid retention, following otorrhœa of the right side, gave rise to two kinds of disturbances—on the one hand, multiple and deep, purulent effusions between the lateral muscular masses of the neck, after spontaneous rupture of the internal wall of the tip of the mastoid; on the other hand, symptoms of pyæmia consecutive to the development of suppurative thrombo-phlebitis limited to the bulb of the jugular. No less than four interventions under chloroform were necessary in order to reach all these multiple foci. The cervical burrows extended to the bottom of the pharyngo-maxillary space by a series of purulent intermuscular pockets, communicating one with the other.

The bulb of the jugular was reached and opened according to Grunert's method, after ligation of the vein below the thyro-linguo-facial trunk; then ligation of this trunk itself, and the long venous canal of the jugular sinus was transformed, after incision of the external wall, into a perfectly disinfected channel. After these multiple interventions the two cranial and cervical foci were at last completely drained and the temperature fell progressively to normal, when the patient was seized with a severe attack of epileptiform convulsions, after which he fell into a coma.

Suspecting an encephalic abscess, Dr. Luc punctured the cerebellar hemisphere and the temporo-sphenoidal lobe in all directions without coming across any purulent collection. Death took place four hours afterwards.

For want of being able to hold an autopsy (refused by the patient's family), the author expressed the hypothesis that death had been determined by ventricular haemorrhage caused by high venous intra-cranial tension, this being consecutive to the double ligature of the jugular and its principal tributary. This venous tension was ascertained during the operation (venous haemorrhages from the bone which were extremely abundant and difficult to arrest).

Dr. PAUL LAURENS mentioned a case of thrombo-phlebitis of the bulb of the jugular, operated on by himself, and in which death was caused by a large area of sub-parietal meningitis. This special localisation of meningitic lesions was frequent in the course of thrombo-phlebitis of the bulb.

Dr. GEORG LAURENS thought that, instead of having performed simple antrotomy in the beginning, it would have been better to have completely scooped out the mastoid, to have exposed the middle fossa of the skull and the knee of the sinus, and to have resected the bony pyramid in its entirety. In that way he would, perhaps, have been able to discover all the cervical effusions at once. At the same time, all the disturbances were not to be accounted for by the pyæmia, as the sinus was healthy. The cause was rather a suppurative peri-phlebitis with secondary cervical abscess. He thought, also, that the puriform clot contained in the bulb of the jugular was also only secondary, and due to dehiscence of the floor of the typanum; unfortunately, it was impossible to demonstrate the possibility of this fact by an autopsy. Finally, he did not believe that ligature of the jugular was the cause of the final accident, as fourteen days had passed between this operation and death.

Dr. Luc thought ligature of the jugular had perhaps been abused during recent years as a preliminary measure for opening an infected lateral sinus. This operation was not, according to him, exempt from danger, especially when practised on the right side, the calibre of the jugular on the left side being sometimes very inferior, which rendered re-establishment of circulation difficult. In conclusion, in relation to the course to pursue in future in the presence of the occurrence of pyæmia from sinus thrombo-phlebitis, Dr. Luc proposed the following formula: either only to

tie the jugular in a case of extension of the phlebitis to this vessel, and then at a height corresponding to the lower limit of the septic thrombus; or, if it were thought necessary to tie the vein when not infected itself, only to practise such ligature above the opening of the thyro-linguo-facial trunk, in order that re-establishment of the circulation of the facial, lingual, and thyroid veins might be assured, as well as of the pterygoid and vertebral plexuses.

CASE OF FACIO-SCAPULO-HUMERAL MYOPATHY OF NASAL PREDOMINANCE.

BY DR. PASQUIER.

The author reported the case of a man, aged twenty-nine, in whom had developed, since the age of twenty, facio-scapulo-humeral myopathy. The chief symptom was collapse of the alæ of the nose on to the septum, producing, at each inspiration, almost complete obstruction of the nostrils, which dilated under the blast of expired air. There was atrophy of the pituitary mucous membrane and of the turbinated bodies. The muscular atrophy had given a skeleton-like appearance to the face. The patient was obliged to breath through the mouth; quick walking was difficult, and running impossible. The appetite and digestion were normal. Feeding up had not arrested the development of the atrophy.

Electric treatment was instituted. Slight diminution of electric excitability in the region of the facial nerve was found.

Abstracts.

MOUTH.

Kretchmann (Magdeburg).—*Throat Symptoms caused by Disease of the Glands of the Floor of the Mouth.* “Archiv für Laryngol.”, vol. xix, part 1, 1906.

The author of this paper states that some years before the appearance of Bœnninghaus' publications (“Ueber Nervösen Halsschmerz”), he had himself, as a result of systematic bimanual palpation, arrived at the conclusion that in many obscure throat cases similar to those dealt with by Bœnninghaus quite definite and readily appreciable pathological changes are present in the glands of the floor of the mouth, and are the cause of the trouble.

After a somewhat detailed consideration of the anatomy of the region, in which especial attention is devoted to the submaxillary and sublingual salivary glands, a description is given of the symptoms usually present. The chief of these are disturbances of the act of swallowing, such as pricking and burning sensations, the feeling of a foreign body in the throat, and

the symptom known as *globus hystericus*. Pain, which is rarely great, may be localised in the affected region or referred to distant parts, notably the ear (so-called *otalgia neurosa*). Sensations of dryness and burning in the throat may be due to diminished secretion of saliva, though this is doubtful.

On bimanual examination with the fore-finger of one hand in the mouth and that of the other hand externally, the submaxillary and sub-lingual glands are easily felt, and in these cases are found to be distinctly enlarged and tender. Enlargement and tenderness of the lymph-glands of this region do not appear to give rise to the like troublesome symptoms. The submaxillary gland was affected in all the author's cases, the sub-lingual only in 25 per cent., a fact which is perhaps associated with the greater liability of the former to salivary calculi. In four cases of the series the swelling seemed to be due to salivary obstruction, but the vast majority (eighty) were certainly of an inflammatory nature. The micro-organisms which are responsible for the inflammation enter the gland most probably through the duct. Excessive movement of the floor of the mouth, as in prolonged speaking or singing, appears to originate the trouble in some cases.

Treatment, especially in cases of a rheumatic nature, includes the internal administration of salicylates or aspirin, together with the external application of tincture of iodine or mesotan and vaseline (1 in 2). The best and most certain measure, however, is gentle massage between two fingers, one within and the other without the mouth. The unpleasant sensations may disappear at once, and in a few of the more acute cases may not return; in the more chronic forms, however, several "sittings" are required. The size and consistency of the organ may be observed during the course of treatment to return to the normal.

Thomas Guthrie.

FAUCES.

Goodale, J. W.—*The Examination of the Throat in Chronic Systemic Infections.* “Boston Med. and Surg. Journ.” November 29, 1906.

Dr. Goodale suggests the examination of the throat as a possible portal of infection in cervical adenitis and chronic arthritis. The examination should not be merely ocular, but based “upon an intelligent application of the related data in physiology and pathology.” The author confines himself to tuberculosis of the lymph-glands and infectious arthritis. The nine cases described show that tuberculous cervical adenitis may exist in association with the presence of tubercle bacilli in the tonsils, and that a form occurs accompanied by subacute and chronic inflammation of the tonsils and disappears after their excision. Macleod Yearsley.

Zoliki (Strassburg).—*A Congenital Fibrolipoma of the Palatal Tonsil.* “Arch. of Otol.” vol. xxxv, No. 2.

The tumour was 30 mm. in length, the greatest breadth being 11 mm. It was of an elongated club shape, attached with a narrow pedicle to the tonsil. It presented the peculiar feature that at its most distal part it contained an area of lymphatic tissue containing follicles, and there were similar minute particles scattered throughout. Dundas Grant.

PHARYNX.

Uffenorde, W.—*Lateral Pharyngitis.* “Archiv. für Laryngol.,” vol. xix, part 1, 1906.

The author regards pharyngitis lateralis as one of the most common and troublesome forms of chronic pharyngitis, and emphasises the frequent disproportion between the gravity of the local lesion and the severity of the symptoms. After reviewing the literature he proceeds to describe the appearances met with.

Examination in typical cases shows, behind the posterior pillars of the fauces, two thick parallel swellings, separated by a longitudinal furrow. These swellings apparently correspond to the salpingo-palatine and the salpingo-pharyngeal folds, of which the former is usually the more affected. The condition is frequently associated with granules on the posterior pharyngeal wall and general tonsillar hypertrophy.

The symptoms include all the paraesthesiae and other troubles commonly associated with chronic pharyngitis, but certain painful sensations in the neck and laryngeal region are to be regarded as typical. The pain may arise spontaneously or on swallowing saliva (Leerschlucken), not often on eating: it is always referred to a definite point in the thyro-hyoid space, or to one just above the clavicle between the trachea and oesophagus. These points are often sensitive to pressure, and the pain radiates from them in various directions, especially to the ear. Aural symptoms such as tinnitus, pain, and deafness, existing with normal tympanic membrane, may disappear completely after treatment of the pharyngitis.

The aetiology is the same as that of chronic pharyngitis in general, but special stress is laid on sinus disease, tonsillar hypertrophy, and hypertrophy of the posterior ends of the inferior turbinates.

The treatment in the early stages must include the removal of the cause, the use of gargles, and the application of zinc chloride (2 per cent.) to the rhino-pharynx. When the changes are more pronounced cauterisation with trichloracetic acid at intervals of a week is to be tried. Considerable hypertrophy demands excision, which is best performed with Halle's scissors, unless the swelling extends upwards into the nasopharynx, in which case Hartmann's conchotome is to be preferred. The galvano-cautery is not to be recommended.

In conclusion, the author draws attention to the striking similarity between the group of symptoms associated by himself with pharyngitis lateralis and that recently described by Benninghaus as “neuritis laryngea.” Most of his own patients showed the upper “pressure point” of Benninghaus and many also the lower; further, in only one of Benninghaus' cases was there no suspicion of nasal, pharyngeal, or laryngeal disease.

Thomas Guthrie.

NOSE AND ACCESSORY SINUSES.

Mosher, H. P. (Boston).—*Killian's Frontal Sinus Operations.* “Boston Med. and Surg. Journ.,” October 11, 1906.

The cases suitable for Killian's operation are divided into two groups: (1) Chief feature—eye symptoms, exophthalmos and ethmoid tumour. Mosher considers a Killian operation indicated in these cases, because Nature practically forestalls the surgeon; (2) chief symptoms—pain and unilateral discharge. Such cases, to be suitable for the Killian operation, should have a large sinus, there should be a marked ethmoiditis, or

should the latter have cleared up, the frontal suppuration should remain unchanged.

The author considers the chief advantage of the Killian operation to lie in the treatment of the ethmoid cells. The technique of the operation is discussed. The author finds X-ray examination of the greatest help in dealing with frontal sinus cases. He advocates the trial of simple methods of operating before the Killian procedure is undertaken.

Macleod Yearsley.

Chavanne, F. (Lyons).—*Pain in the Frontal Sinus due to Hysteria.*
“La Presse Oto-Laryngologique Belge,” August, 1906.

The fact that frontal sinusitis may be simulated by hysteria has already been noted by Jaques, who recorded two cases in which he had been led to operate by symptoms which were apparently unmistakable. (*Revue Hebd. de Lar.*, 1902, t. 2, p. 177.)

The author records the case of a female with marked signs of hysteria, who had an empyema of the maxillary sinus due to a carious tooth, for which she was treated. Very soon after her recovery she developed mental dulness, rigors, nausea, and vertigo, with sleeplessness, accompanied by severe pain in the occiput and the right side of the head. Deep pressure over the right frontal sinus was extremely painful, but it was found that pinching the skin in this locality was equally so. There was no tenderness, either on pressure or pinching over the left sinus. Rhinoscopy showed nothing to suggest infection of the frontal sinus. The author did not operate, and the patient rapidly recovered.

Chichele Nourse.

Burger, H.—*Dermoid Cyst of the Base of the Nose, consecutive to a Surgical Operation.* “La Presse Oto-Laryngologique Belge,” September, 1906.

The description of a case in which a plastic operation for correcting a nasal deformity, when a flap of skin was taken from the forehead, was followed by the development of a slowly growing tumour at the root of the nose.

When seen by the author four years later the growth was the size of a marble. Occasionally a discharge of white fluid occurred from one spot, and the tumour collapsed, but the opening closed and it soon filled again. One operation had already been attempted, but without success. Dr. Burger removed the cyst, which contained a mass of white material, consisting of fatty and epidermal cells. On microscopic examination, the wall was found to consist of connective-tissue, lined here and there with epithelium, with many sebaceous glands and occasional hairs. The cyst was, no doubt, caused by implantation at the plastic operation.

Chichele Nourse.

Streit.—*A Case of Angioma of the Nose, commencing during Pregnancy.*
“Monats. für Ohren.,” August 18, 1906.

The patient suffered from atrophic rhinitis. In the early months of pregnancy she noticed considerable obstruction of her right nostril. During the fifth month epistaxis commenced and recurred daily, and the nostril became completely occluded. The epistaxis continued severe until the parturition, after which it ceased. Two months later severe haemorrhages occurred and the patient, who was much enfeebled, came under observation. On examination the left nostril presented the typical appearance of atrophic rhinitis, the right was entirely blocked by a dark

reddish-blue tumour which bled very severely on being probed. The tumour was about the size of a plum, and took its origin from the inferior turbinal. The remaining mucous membrane of the nostril was in a similar condition to that on the left side. The tumour was found to be a soft fibroma, very vascular and containing several masses of decomposing blood-clot. The author refers to the researches of Freund and Manasse, who showed that the mucous membrane of the septum and inferior turbinal undergoes a passive hypertrophy during pregnancy, consequent upon the engorgement of the blood-vessels which takes place, and points out that a similar condition of affairs exists in the thyroid gland; he is of opinion that the causation of the angioma in this case is to be found in the increased vascular activity of pregnancy. *Knowles Renshaw.*

Oppikofer, Ernst (Basel).—*A Contribution to the Normal and Pathological Anatomy of the Nose and its Accessory Cavities.* “Archiv für Laryngol.”, vol. xix, part 1, 1906.

This paper is based upon the results of 200 dissections, and is concerned rather with certain points of especial practical import than with the general anatomy of the region. Particular attention is devoted to the frequency with which post-mortem examination discloses disease of the accessory cavities. One or more of the cavities were found to be diseased in 94 of the 200 cases, and an empyema was present in about every fourth case. The antrum was diseased in 38 per cent., the ethmoid in 18 per cent., the sphenoid in 9·5 per cent., and the frontal sinus in 7·5 per cent. The author emphasises the practical impossibility in many cases of determining from post-mortem appearances alone whether the disease has been acute or chronic, and holds that on this account the statements of Wertheim and Duochowsky as to the greater frequency of chronic disease are worthless. On the other hand, he himself found, as a result of the examination of 23 cases both before and after death, that while post-mortem all of these showed sinus disease, ante-mortem in only 3 was there any indication of such disease. He concludes, therefore, that in the great majority of the cases the disease was acute, having arisen within the last few days of life.

No case was observed of absence of the antrum or of the ethmoid cells. The frontal sinus was absent in 3·7 per cent. of the cases, and the sphenoidal sinus in 2·6 per cent. Polypi were found in 6 per cent. in the nasal cavities, and in one instance in the antrum. In several undoubted cases of ozæna the accessory cavities were found to be healthy.

With a view of determining the distribution of cylindrical and stratified epithelium in the nasal mucosa microscopical examination was made of a strip of mucous membrane from the whole length of the septal side of each middle and inferior turbinate, care being taken to keep distinct the anterior and posterior ends. In only 17·5 per cent. was cylindrical epithelium alone present, all the others showing, in addition, either transitional or stratified epithelium, or both. Stratified epithelium was present in greater amount in the anterior than in the posterior regions of the nose. In every case of ozæna stratified epithelium was found, but the amount of it bore no relation to the degree of the turbinate hypoplasia. Its presence is not to be regarded as in any way characteristic of ozæna, for it may occur to a marked degree in ordinary chronic rhinitis, and even in macroscopically apparently normal nasal cavities.

The paper is illustrated by a number of drawings.

Thomas Guthrie.

Sondermann (Dieringhausen).—*Suction Treatment in Diseases of the Nose.*
“Münch. med. Woch.” November 6, 1906.

In answer to criticisms the writer urges the necessity for confining the treatment to suitable cases, eliminating in the first instance those about whose operative treatment doubt may remain, whether it be as to caries or necrosis, new growths, abnormal distension of the cavities, threatening symptoms from extension to neighbouring organs, and so forth. In those cases which do not come under this category it is necessary to draw a wide distinction between the acute and the chronic, the former being those essentially adapted for the suction treatment, the latter much more doubtful. If the suction causes increase of pain rather than relief, it should be stopped. Failure sometimes follows from its not being practised often enough. It may even be necessary for a time to use it every hour. In ozæna it ought to be used with great frequency. For hospital treatment where the same instrument has to be used for many patients, the writer has devised an olive-shaped tip for the nose instead of the “mask,” with a view to greater ease in disinfection. For the extraction of fluids from the accessory cavities the head has to be turned in the position indicated by anatomy as being most favourable.

Dundas Grant.

LARYNX.

Wichern, H., and Loening, F. (Leipzig).—*Displacement of the Larynx and Trachea in Various Diseases of the Thoracic Organs.* “Münch. med. Woch.” October 16, 1906.

An oblique displacement of these parts may be detected by inspection under good illumination and by palpation. It may be brought about by pressure or by traction, and has been observed accordingly in such diseases as aneurysm, sarcoma, pleurisy, pneumo-thorax, and pulmonary tuberculosis.

Dundas Grant.

THYROID AND TRACHEA.

Diriart and Rozler.—*Paralysis of the Recurrent Nerve from Thyroid Compression; Thyroidectomy; Cure.* “Annales des Mal. de l’Oreille du Nez, du Larynx, et du Pharynx,” September, 1906.

A woman, aged forty, of delicate constitution, suddenly became aphonic, and shortly afterwards experienced several suffocative attacks. Dr. Diriart found a thyroid tumour occupying the left side of the neck; its upper limit extended to the middle of the anterior border of the sterno-mastoid and its lower pole dipped into the pre-sternal notch. The swelling was mobile, not painful on pressure, and there were no glandular enlargements or accessory growths. A laryngoscopic examination revealed the larynx displaced to the right. The left cord, which was flaccid with concave margin and apparently shortened, occupied the cadaveric position; the right, which was normal, passed over the middle during phonation. A diagnosis of recurrent paralysis from thyroid compression was made and operation advised. The left half of the thyroid, including the growth, was excised in the usual way. Nothing unusual was noted save that a process of the growth extended into the tracheo-oesophageal groove.

The tumour removed was almost the size of the fist, in shape ovoid, pyriform, and elongated from above downwards. An uninterrupted recovery followed, and the left cord completely regained its function. In this case the writers think they had to deal with a thyroid tumour, probably sarcomatous in nature, which developed suddenly, invading the tracheo-oesophageal groove and compressing the nerve, a condition more easily brought about on the left side owing to the nerve not being so well protected by the trachea on that side as on the right.

The authors remark on the rarity of cure in recurrent paralysis by operation, and attribute success in this particular instance to early surgical intervention.

H. Clayton Fox.

Jaboulay, M.—*A Tracheotomy Cannula fallen into the Right Bronchus.*

“Annales des Mal., de l’Oreille, du Larynx, du Nez, et du Pharynx,” November, 1906.

A man, aged fifty-nine, had worn a tracheotomy tube for syphilitic stenosis four years, during which time cleansing of the outer portion had been neglected, the result being that it became rusty and worn, broke off close to its flange, and fell into the air-passage. At the time of the accident little distress was experienced, only a little tickling felt, with a transient fit of coughing. There was no dyspnoea. On the following day the patient entered hospital with moderate dyspnoea, temperature 39° C. On auscultation of the chest only feeble breath sounds were audible over the whole of the right lung, the breath sounds over the left were normal; from these findings and the history of the case a diagnosis of a foreign body in the right bronchus was made, which a skiagram subsequently verified. A dark body coinciding in shape with that of the lost cannula lay obliquely across the inner end of the second intercostal space and adjacent portion of the third rib, its upper extremity being close to the right border of the sternum (15 cm. below the infra-clavicular notch) and its lower a finger’s breadth outside it. Bronchoscopy instruments not being to hand and the man’s condition becoming grave, temperature continually rising, with abundant frothy expectoration continually issuing from the tracheal wound, direct extraction through the latter was tried, but all efforts to locate the tube, both by probing and forceps, were futile. It was then resolved to make a thoracic exploratory incision, not for the purpose of intra-thoracic bronchotomy, but for pressing back the foreign body on to the tracheal forceps in front. An L-shaped incision was made over the inner end of the second and third intercostal spaces, a portion of the third rib resected, and the parietal pleura opened. Pneumothorax immediately followed, with frequent and laborious respiration; the hand was inserted but nothing but the normal outline of the cartilaginous rings was noted. On withdrawal of the hand grave dyspnoea set in; the pleural wound was then rapidly closed. The attempt to mobilise the cannula was a failure. The patient recovered from the shock of the operation and the physical signs of pneumothorax rapidly cleared up, but the temperature continued; during the first two or three succeeding days the evening exacerbations exceeded 40° C. Eight days after the trials at extraction, although the temperature had declined to between 38° C. and 39° C., the pulse was 100, the patient experienced oppression at night, and expectoration was always abundant and frothy.

Bronchoscopy was finally resorted to by M. Garel, with the result that the cannula was removed through a Killian’s tube on the first attempt.

H. Clayton Fox.

ŒSOPHAGUS.

Schroetter, v. (Vienna).—*The Recognition of Tuberculosis of the Œsophagus.* “Brauer’s Beiträge zur Klinik der Tuberkulose,” Band vi, Heft 3, and “Münch. med. Woch.” November 6, 1906.

The diagnosis was made by œsophagoscopy. The condition most frequently arises from extension by continuity from tuberculous foci in the lungs or neighbouring glands. Less often it is due to inoculation by infective sputum, especially if the ground is prepared by previous corrosion, new growth or stenosis.

Dundas Grant.

EAR.

Walker, D. H.—*Aural and Nasal Examinations of School Children.* “Boston Med. and Surg. Journ.” December 13, 1906.

This paper describes the experimental examination of the hearing power of children at a school in Brookline; 289 children were examined, with the following results: 68, or 23 per cent., had two thirds of normal hearing or less; 10 had hypertrophied turbinates; 35 had septal spurs; 8 had deviated septa; 89 (30 per cent.) had adenoids; 63 (21 per cent.) had hypertrophied tonsils; results of chronic middle-ear suppuration 15; ear discharges 3.

In comparing the hearing tests with the scholarship of those pupils marked “excellent,” 17 per cent. showed diminished hearing, “good” showed 20 per cent., “fair” showed 30 per cent.; whilst of those marked “unsatisfactory,” 52 per cent. showed diminished hearing, and in those marked “poor” this condition was 42 per cent. *Macleod Yearsley.*

Withington, C. F.—*A Dozen Convalescent Cases of Cerebro-spinal Meningitis.* “Boston Med. and Surg. Journ.” November 29, 1906.

A certain number (not stated) of these cases (shown at the meeting of the American Medical Association in June, 1906) had permanent deafness. In some there was middle-ear disease, in others disease of the labyrinth. One of the latter showed titubation.

Macleod Yearsley.

Rudloff, P. (Wiesbaden).—*On the Course of the Sigmoid Sinus in the Child’s Skull.* “Arch. of Otol.” vol. xxxv, No. 2.

An abstract of this valuable contribution appeared in the JOURN. OF LARYNGOL., RHINOL., AND OTOL. for January, 1904, p. 59. The author was led to investigate the differences between the situation in the child at various ages and that in the adult.

Dundas Grant.

Amberg, Emil (Detroit).—*Otitis Interna Sinistra Hæmorrhagica (?).* “Ticarous Menstruation (?).” “Arch. of Otol.” vol. xxxv, No. 2.

A woman, aged thirty-three, took a very hot bath immediately after a monthly period, and soon felt dizzy and nauseated, so as to have to lie down for one and a half hours. Later she observed a noise like escaping steam, which persisted. The dizziness lasted about two and a half months. When seen by the author there was great diminution of hearing power for the watch on the left side. Vertex tuning-fork was localised in the good ear. (Apart from this the evidence of internal ear was not very

definite, and in view of the "negative Gelle" in the left ear, and the history of a little deafness on that side of ten years' duration, the case seems on a par with those of sclerosis in which vertigo is produced by very slight disturbances in circulatory pressure. Politzer has stated that the diagnosis of Ménière's disease can only be made with certainty when the symptoms come on in a person with previously complete normal hearing [Germ. edit., p. 600]. The case is a most interesting one, but the clinical history as summarised in the report leaves room for uncertainty as to the exact diagnosis and justifies the author in appending to it a point of interrogation.)

Dundas Grant.

Knapp, A. (New York).—*What Cases of Chronic Purulent Otitis require the Radical Operation?* "Arch. of Otol.", vol. xxxv, No. 2.

The author quotes with approval Heine's grouping of cases as "dangerous" and "not dangerous" according as the bone is affected especially in the attic and antrum or the inflammation is more limited to the mucous membrane. In the latter case he considers the operation is not indicated. On the other hand, it is urgent when there are such symptoms as headache, nausea, and vomiting, or where the bone is found affected or cholesteatoma is present, and the symptoms are not relieved by a minor operation. The operation is indicated when the signs of bone-involvement continue after conservative treatment has been followed out for a certain length of time and the odor of the discharge persists. A marginal perforation indicates greater danger than a central one. The author states that on a recent visit to several well-known German aural clinics he found less readiness to resort to the radical operation than formerly.

Dundas Grant.

Suckstorff (Hanover).—*The Leucocyte Count in Inflammatory Diseases of the Ear and of the Temporal Bone and in Otic Intra-cranial Complications.* "Arch. of Otol.", vol. xxxv, No. 2.

In seventeen cases of serous otitis media six, under ten years of age, the leucocytes averaged 13,300 (practically the normal 12,900). In adults the same was the case. In eight of acute purulent otitis media four, under ten years old, had an average of 20,150, the others, adults, 12,900. In six adults with chronic suppuration of the middle ear the leucocytes were normal in number. Acute mastoiditis without intra-cranial complications gave in children an average of 16,400 and in adults 12,740. In meningitis absence of leucocytes suggests the tuberculous form, marked leucocytosis the idiopathic. The author considers his material insufficient to furnish definite data, but appeals for further investigation on the same lines. (The paper of which this is an abridgment was published in the *Zeitschrift für Ohrenheilkunde* in 1903.)

Dundas Grant.

Sarai, Tatsusaburo (Japan).—*On Post-operative Pyocyanous Perichondritis of the Auricle.* "Arch. of Otol.", vol. xxxv, No. 2.

The author narrates a case in which this condition followed the radical mastoid operation, the wound having been dressed with moist 2 per cent. carbolic acid. For this was substituted a dry dressing, preceded daily by the insertion of a pledget of gauze saturated in a 2 per cent. solution of nitrate of silver for ten minutes. The perichondritic swelling extended, but stopped short under gauze moistened with alcohol and covered with oil-silk. Incision and drainage were required. (Lermoyez has made some important experiments on the rabbit, showing the tendency of the *Bacillus pyocyanus* to excite perichondritis.)

Dundas Grant.

Brandegee (New York).—*Case of Death from Pulmonary Thrombosis following Operation for Sinus Thrombosis.* “Arch. of Otol.”, vol. xxxv, No. 2, p. 133.

On opening the sinus no return flow was obtained from below, but it was readily established by means of a curette. The child did well, till four days later he suddenly awoke with a cry of pain, and died with symptoms of heart failure. The diagnosis was made of pulmonary thrombosis.

Dundas Grant.

Cowen (New York).—*Fatal Case of Brain Abscess.* “Arch. of Otol.”, vol. xxxv, p. 135.

This was an abscess of the cerebellum which gave rise to sudden death, due to involvement of the respiratory centres. Uncertainty as to localisation and as to the otitic origin had interfered with operation.

Dundas Grant.

Harmon-Smith (New York).—*Case of Radical Operation for Chronic Otitis Media Suppurativa, followed by a second Operation for Removal of the Internal Ear, and later by an Operation for the Evacuation of a Cervical Abscess and an Epidural Abscess.* “Arch. of Otol.”, vol. xxxv, p. 156.

This remarkable case was complicated by the presence of necrosis of the occipital bone, probably syphilitic in nature. Both antisyphilitic medication and surgical intervention were thoroughly practised, but were unavailing.

Dundas Grant.

Kennon, B. R. (Norfolk, Va.).—*Symptoms and Treatment of Sinus and Jugular Thrombosis with the Report of Five Cases.* “Arch. of Otol.”, vol. xxxv, No. 3.

The writer reviews the various symptoms and finds none to be depended on except the temperature. In treatment he insists on the great necessity of rapid operation. If the temperature has been indicative of sinus involvement, he advises opening the sinus at the time of the mastoid operation, even though its appearance and feel do not indicate the presence of clot. Should the thrombus be situated either primarily or secondarily in the bulb, he urges exposure and resection of the jugular vein. He brings the upper end out of the upper angle of the wound, which he leaves open and packs.

Dundas Grant.

Seligmann (Frankfort).—*A New Point of View in the Treatment of Aural Furunculosis and Furunculosis in General.* “Münch. med. Woch.”, October 30, 1906.

Seligmann considers that furuncle in the ear has always as a basis an eczematous condition on which the staphylococcus is inoculated by traumatism. He recommends anti-eczema treatment, particularly powders such as dermatol. He is opposed to incisions. In a discussion following his paper Vohsen agreed as to the frequency of the precedent eczema and to the avoidance of incisions, advocating warm applications. Veis considered incision the best means of relieving the pain. Hirschberg praised the suction treatment.

Dundas Grant.

Zalewski (Lemburg).—*Experimental Investigations concerning the Power of Resistance of the Tympanic Membrane.* “Zeitsch. f. Ohrenheilk.”, Bd. lii, Heft 1 and 2.

Zalewski found that a pressure of one or two atmospheres was necessary to bring about rupture of the normal membrane. The membrane was less resistant in cases of cicatrices, atrophy, inflammatory processes, or advancing age, but increased in the presence of fibrous or calcareous

thickening. One difficulty in the experiments was to keep the tube leading from the force-pump air-tight in the external meatus. This was overcome by fixing the tube and the preparation in plaster-of-Paris. Another tube fixed in the Eustachian tube was led under water, so that the rising of bubbles of air might indicate the moment when the tympanic membrane gave way. It was found, however, that bubbles rose without any rupture of the membrane, the air having got round into the tympanum in a round-about way. The inner surface of the membrane was therefore exposed by chiselling away bone and watched by the eye. In most cases the rupture was small, and ran between the malleus to the annulus tympanicus, but seldom the whole way, and more frequently in the anterior than the posterior segment, especially in the more resistant membranes. The appearances in the speculum do not always give us a correct idea as to the size and form of the rupture. [Passow has laid great stress on this.—D. G.]

Dundas Grant.

Hinsberg, V. (Breslau).—(1) *On the Significance of Conditions found during Mastoid Operations in regard to the Diagnosis of Labyrinthine Suppuration.* “Zeitsch. f. Ohrenheilk.” Bd. lii, Heft 1 and 2.

Along with a careful functional examination before the operation on the middle ear, there is required a careful examination of the wall of the labyrinth, especially the two windows, the promontory and the horizontal, semi-circular canal, when the middle ear is opened. Fistulæ in the fenestrae and the promontory indicate, almost invariably, a diffuse affection of the labyrinth, those in the horizontal canal sometimes a circumscribed one.

(2) *Indications for the Opening of a Suppurating Labyrinth.*

The operative opening of the internal ear is indicated when there are, at the same time, deafness and irritation, or suppressed phenomena, and convincing evidences of a diffuse disease of the labyrinth, revealed by the radical operation; when, along with a circumscribed affection of the semi-circular canal, there are evidences suggestive of an intra-cranial complication. It is, however, justifiable, in the absence of the latter, to pause after the radical middle-ear operation, and wait for the functional tests to indicate an extension of suppuration. In case of sequestrum formation, this should, if loose, be carefully extracted, but, if still fixed, should not be forced away, for fear of laceration of the carotid. The author leaves for the future to solve the question as to whether, in case of accidental laxation of the stapes, the labyrinth ought to be opened at once. The subsequent supervention of labyrinthine symptoms would, in any given case, settle the question.

Dundas Grant.

Manasse (Strasburg).—*Chronic Progressive Labyrinthine Deafness.* “Zeitsch. f. Ohrenheilk.” Bd. lii, Heft 1 and 2.

The author examined thirty-one labyrinths from cases of so-called nervine deafness, and found atrophy of the nervous tissue, which was replaced by new connective tissue. The changes appeared to be greatest and earliest in the auditory rather than in the equilibrial part. He insists on the frequency with which nerve-deafness occurs without any disturbance of equilibrium. He quotes Wittmaack as labelling such cases as affections of the cochlear nerve rather than of the labyrinth as such, and considers it correct only if the term “cochlear nerve” includes the nerve trunk, the spiral ganglion, the finer ramifications of the nerve, and Corti’s organ. Manasse found that out of fifty-two cases of chronic progressive deafness, twenty-one were of middle-ear and thirty-one of

“nerve” origin, the latter being, therefore, the more frequent. The paper is accompanied by a number of plates showing the morbid anatomy of the disease.

Dundas Grant.

Terson (Toulouse) and **A. Terson** (Paris).—*Paralysis of the Sixth Nerve, Complicating Otitis.* “Annales des Mal. de l’Oreille, du Larynx, du Nez, et du Pharynx,” July, 1906.

At the outset the writers observe that, notwithstanding the gravity of diplopia in ear disease as a precursory symptom of meningitis or thrombo-phlebitis, oculo-motor paralysis does not always possess such serious significance, as the following case, amongst others quoted, testifies: A boy, aged seven, had suffered from left middle-ear otitis of influenzal origin for three weeks, perforation occurring on the fourth day. During the last eight days he had convergent strabismus of the left eye, with diplopia and functional weakness of the right rectus. In two months the paralysis recovered *pari passu* with the otitis. Mastoid symptoms had been absent. There was no ozaena. The teeth, nose, and face were normal. Treatment consisted in the administration of syrupus iodo-tannicus. Cases of other observers are then mentioned. Gervais noted two cases (in the practice of Tillaux) of internal strabismus and diplopia on the same side as otitis, which were ascribed to irritation of the meninges; in one case the ocular trouble disappeared the day after trephining, in the other some days subsequent to the opening of a subperiosteal abscess. Sutphen reported a case of caries of the petrous bone, secondary to an otitis of fifteen years’ duration, where, shortly before death, there were total paralysis of the sixth nerve of the same side and double optic neuritis. Boerne Brettman published a case of paralysis of the right sixth nerve complicating tympanic suppuration of the same side, which ended in recovery. Keller observed a similar association in a child, aged seven, convalescent from measles. Styx, Schubert, Forsselles, Hubermann, Brieger, and others are cited as having experienced like cases. As to the etiology of the complication the authors feel that the otitis is the prime source of the mischief, the symptomatology, clinical course, unilateral nature of the lesions all pointing to this. To explain the relationship between the otitis and paralysis two theories are invoked, the reflex and infectious. In connection with the former the following nervous communications between the oculo-motor and the auditory and other nerves are given:

The internal and external nuclei of the vestibular portion of the auditory are in relation with the nuclei of the sixth, third, and fourth nerves. Peripherally the sixth anastomoses with filaments of the carotid plexus and with the ophthalmic division of the fifth and with the third nerve.

These communications may afford an explanation of such oculomotor complications as strabismus, nystagmus, and blepharospasm, met with in aural diseases and operations.

The writers consider it improbable that true paralysis of the abducent complicating otitis ever arises in a reflex way, and believe the lesion to be the result of an infectious process which travels along the course of the carotid artery in its bony canal to the sixth nerve, which in the cavernous sinus bears a very close relation to that vessel. The venous efferents which pass from the tympanum to the plexus of veins surrounding the carotid artery via the carotico-tympanic canaliculi, together with lymphatics traversing a similar route, afford an easy means to facilitate such a process.

H. Clayton Fox.

THE

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

PRESENTATION AND ADDRESS TO PROFESSOR POLITZER.

At the end of the summer term, 1907, Hofrat Professor A. Politzer will have arrived at the age-limit beyond which, according to the laws of Austria, he may not retain his chair at the University of Vienna, and will, therefore, resign this position, as well as that of the head of the Vienna ear-clinic.

At the same time his lectures, which have been of so great importance, and which he has delivered throughout forty-six years, will cease to be given. His world-wide reputation and the great esteem in which he is held by everyone, and above all by the members of his own branch of science, make it superfluous to refer in particular to the great merits of his work in otology and medicine in general.

The undermentioned committee believes, therefore, that it will be acting according to the wishes of Professor Politzer's numerous pupils and friends, in choosing that time when the master is about to leave the place which has witnessed such a long and fruitful activity, fitly to express the sentiments of veneration and gratitude toward him.

The committee had originally decided unanimously to hold a formal celebration, to which all professional brethren of Austria-Hungary, as well as those of the foreign countries, were to be invited, and particularly the representatives of the Otological Societies. Professor Politzer, however, having become aware of these preparations, requested that in view of the fact that deaths

had lately occurred in his immediate family, no public celebration take place.

It has therefore been decided to issue a plaquette (medal) after a model made by the renowned sculptor, Mr. Telcs, bearing a portrait of the master. A copy of the plaquette in gold is to be presented to Professor Politzer by the local committee on the designated day; other copies, some in silver and some in bronze, will also be struck off to serve as souvenirs of the eminent scientist and of the memorable day. These will be placed at the disposal of those who subscribe to the celebration.

Together with the plaquette an address, containing all the names of the subscribers, will be given to the master.

All medical men, in particular all former students of Professor Politzer, and all otological specialists who desire to honour him, are invited to send their applications to the treasurer of the committee.

All communications should have plainly written the names, titles, and the exact address of the sender, and should be accompanied by a remittance of 24 kronen (1 sov. or 5 doll.) for the silver plaquette, or 12 kronen (10 sh. or 2·50 doll.) for the bronze plaquette, and be sent as soon as possible and not later than May 15, 1907, to the treasurer, Dr. D. Kaufmann, Vienna, VI., Mariahilferstrasse 37.

Any surplus that there may be, after the necessary expenses have been met, will be placed at Professor Politzer's disposal as a fund to further some scientific object.

For the committee.—Professor Dr. Josef Pollak (Vienna), Dozent Dr. Hugo Frey (Vienna), Dozent Dr. G. Alexander (Vienna), Dr. D. Kaufmann (Vienna, VI., Mariahilferstrasse 37).

Professor Dr. Böke (Budapest), Professor Dr. Demetriadis (Athens), Professor Dr. Gradenigo (Turin), Dr. C. Lagerlöf (Stockholm), Geheimrat Professor Dr. A. Lucae (Berlin), Professor Dr. Urban Pritchard (London), Professor Dr. Schmiegelow (Copenhagen), Dr. Stanculeanu (Bucarest), Dr. Segura (Buenos Ayres), Professor Dr. Delseaux (Brussels), Professor R. Forns (Madrid), Professor Dr. H. Knapp (New York), Dr. M. Lermoyez (Paris), Professor Dr. Okada (Tokio), Professor Dr. Rohrer (Zürich), Prim. Dr. Schraga (Belgrad), Professor Dr. St. von Stein (Moscow), Professor Dr. Zwaardemaker (Utrecht).

BRITISH MEDICAL ASSOCIATION.

Seventy-fifth Annual Meeting, Exeter.

SECTION OF LARYNGOLOGY, OTOLOGY, AND RHINOLOGY.

THE meeting of the British Medical Association will take place this year at Exeter on July 30, 31, and on August 1 and 2. The Section of Laryngology, Otology, and Rhinology will be held under the Presidency of Dr. McKenzie Johnston of Edinburgh.

Foreign and Colonial visitors will be cordially welcomed in the Section, and those who may desire to attend are requested to send in their names as soon as possible to the Honorary Secretaries, together with the titles of any papers they may wish to read.

The Section will meet on Wednesday, Thursday, and Friday, July 31, and August 1 and 2, at 10 a.m., adjourning at 1 p.m. each day.

The following subjects have been selected for special discussion :

(1) Wednesday, July 31.—“The Differential Diagnosis of Tuberculous, Syphilitic, and Malignant Disease of the Larynx.” To be opened by Sir Felix Semon, K.C.V.O., and Dr. Jobson Horne.

(2) Thursday, August 1.—“The Treatment of Chronic Suppuration of the Middle Ear without resort to the Mastoid Operation.” To be opened by Dr. W. Milligan and Dr. W. Hill.

(3) Friday, August 2.—To be devoted to papers.

It is hoped that lantern demonstrations may be given by Dr. Watson Williams on “The Anatomy of the Accessory Sinuses of the Nose,” and by Dr. Milligan on “The Surgical Treatment of Labyrinthine Suppuration.”

Titles of communications should be sent to the Honorary Secretaries as soon as possible, and the papers themselves accompanied by an abstract of each, not later than May 30, for reference to the Committee of the Section. No paper will be accepted for reading until it has been so sent in and approved. The offer of a paper will not be accepted on its title or its abstract alone. Offers of papers will not be accepted in excess of the number likely to be read. Papers cannot be “taken as read.” If not read they form no part of the Proceedings of the Section.

The Honorary Secretaries are : Mr. C. E. Bean, F.R.C.S.E., 19, Lockyer Street, Plymouth, to whom all communications relating to the exhibition of preparations and instruments should be addressed, and Mr. A. L. Whitehead, M.B., 31, Park Square, Leeds, to whom all communications relating to papers and discussions, and marked “Section of Laryngology, Otology, and Rhinology,” should be addressed.

A CASE OF CHRONIC MIDDLE-EAR SUPPURATION WITH NECROSIS OF THE POSTERIOR LABYRINTH, FACIAL PARALYSIS, LARGE PAROTID SWELLING, AND PUS TRACKING DOWN BEHIND THE JAW TO THE SOFT PALATE AND TONSIL.¹

By ARTHUR H. CHEATLE, F.R.C.S.,
Aural Surgeon, King's College Hospital.

A MAN, aged twenty-two, a leather dresser by trade, came to King's College Hospital on December 3, 1906. The history of the trouble is rather vague. He stated that he had never had anything wrong with his ears until the present illness, which started one year and nine months ago in the left ear, but it is evident that he is wrong, for there is a perforation in the right membrane. One year and nine months ago he was an in-patient for five days in the Guildford Hospital for a discharge from the left ear, which came on without pain. The discharge had never ceased since. Six months ago he began to suffer with a constant headache in the left temple and side of the face, and the deafness increased with a constant high-pitched whistling tinnitus.

Six weeks previously a swelling appeared in front and below the left ear, and gradually increased in size with much tenderness.

Three weeks before being seen he noticed that his face was immovable on the left side and was drawn up on the right, the mouth preceding the eye in the onset of the paralysis.

For fourteen days he had been unsteady in his gait with a tendency to sway to the left. He had never fallen down, had never been sick or felt sick. Objects round him had never appeared to move. For one week he had experienced pain on swallowing.

For four days pain in the temple and below the ear had been very great, preventing him from sleeping, and it was on account of this pain that he came to the hospital.

He had been doing his work up to four days before his attendance. He walked quite steadily into the room. His face was pale. A large, tender, firm, pale swelling occupied the left parotid region. The left side of the face was paralysed. The left ear was discharging thick pus, and a large polypus blocked the meatus. There was no swelling or tenderness behind the ear. It

¹ Communicated to the Otological Society of the United Kingdom, March 9, 1907.

was difficult for him to open his mouth, but it could be seen that the left side of the soft palate appeared full, and that the tonsil was pushed downwards and inwards. There was no nystagmus, optic neuritis, or ocular paralysis. The temperature was 97° F.; respiration and pulse normal. The nose and post-nasal space were normal. There was a large loss of the inferior segment of the right membrane.

At the operation, on December 4, the outer wall of the antrum was dense, and the mastoid process diploëtic. The antrum was small, and full of degenerated lining membrane and cheesy pus. The mastoid process was diploëtic and free from disease. On clearing out the polypus from the middle ear it was found that the upper and back parts of the inner wall were absent, and the large opening led to a big cavity which ran upwards, backwards, and inwards, and which should have been occupied by the vestibule and semi-circular canals. This cavity, after being thoroughly exposed by chiselling away the outer wall, was found to be full of granulation-tissue, amongst which was a sequestrum consisting of part of the vestibule and part of the openings of the canals into the vestibule. When this cavity was cleared it was seen to be bounded posteriorly by dura mater. To the best of my belief the cochlea was not removed. There was no escape of cerebro-spinal fluid at or after the operation.

The anterior inferior meatal wall, both bony and cartilaginous, was replaced by a ragged opening from which pus welled up. The finger introduced passed behind the jaw to a large abscess which pushed the tonsil inwards. A finger in the mouth could easily feel that passed into the abscess. In order to drain this abscess an aneurysm needle was passed to the bottom, and its point then pushed up to the surface of the neck in a line with the mastoid process, when it was cut down upon, and everything between the shaft and the surface was carefully divided until the instrument was free. The large remaining cavities were then stuffed with iodoform gauze, and hot fomentations were applied to the parotid swelling.

Examination of the granulation tissue negatived tubercle.

The recovery was entirely uneventful; the temperature never touched 100° F. A great deal of contraction of the meatus has taken place, and a false membrane has formed across its deeper part.

On January 21, 1907, he left the hospital quite healed. He reported himself on February 21, 1907. He looked well, had

resumed work, and had not experienced any trouble beyond the facial paralysis.

The high-pitched whistling tinnitus was replaced by a hiss, which came regularly every two seconds, and was unaffected by carotid compression.

He stated that he heard better than before the operation. Conversational voice, 15 inches; whisper (not forced), 2 inches; acoumeter, 4 inches; Galton's whistle heard throughout; Hartmann's forks also heard throughout. A C 512 tuning fork placed on the vertex was referred to the *right* ear. The same fork gave bone conduction better than air on the *left* side, care being taken that he heard in the left ear when it was placed on the bone, and that it was not really heard in the right. Gardiner Browne's test gave five seconds.

The case is of interest from many points of view. It is extraordinary that such extensive disease should have taken place with such few symptoms, but it must be taken into account that the man is of inferior intelligence; at any rate, the labyrinthine involvement did not cause any violent symptoms, for he was doing his work until four days before admission. The absence of fever is rather remarkable. The chief pain was distinctly located in the left temple. The parotid swelling was probably glandular. The pus seemed to have reached the tonsil straight through the anterior inferior meatal wall. The absence of mastoid signs is accounted for by the anatomical condition, the "infantile" type being present. By "infantile" I mean a diploëtic mastoid process separated from the antrum by a layer of compact bone and a dense outer antral wall—a condition which is due to a persistence of the condition most usually seen in infancy, but on a larger scale.

The case also demonstrates that the vestibule and canals can be removed without loss of hearing—a point which has been previously proved by Ballance in his case recorded in our TRANSACTIONS, vol. i, p. 47, and by Lake in his cases of operation undertaken for incapacitating vertigo without suppuration. The tuning-fork tests were gone through with great care. It will be noticed that Weber's test gives internal results for the left ear, yet Galton's whistle and Hartmann's forks are heard throughout, and Rinne's and Gardiner Browne's tests give middle-ear results. It seems that obstruction to the cochlea, apart from that in the oval window, gives rise to increased bone conduction, except to Weber's test.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE PARISIAN SOCIETY OF LARYNGOLOGY, OTOTOLOGY, AND RHINOLOGY.

Meeting held on November 9, 1906.

OTITIS FROM MEASLES.

MM. LE MARC'HADOUR and BRUDER. While in scarlet fever angina is the main symptom, in measles the oculo-nasal catarrh occupies the first place; and the complication with otitis is found in from 10 to 11 per cent. of cases. Measles otitis may show itself either at the commencement or in the middle course of the exanthemata, or it may be very late, say, twenty or thirty days after the commencement of the disease.

It is, therefore, of importance, in case of infection of the drum, to intervene quickly by means of early paracentesis, in order to avoid extensive destruction of the tympanic membrane, and, above all, it is necessary to supervise the nose and the pharynx even after the disappearance of the rash. The condition might be termed *specific exanthematous adenoiditis*.

M. Luc was of the opinion that the extensive and rapid destructive lesions observed as the result of certain otitides depend not upon delay in carrying out paracentesis, but on the intensity and virulence of the infection.

M. LUBET-BARBOZ, in agreement with M. Luc, has observed that in the otitis of scarlet fever and of measles there is seldom time to perform paracentesis before the tympanum undergoes spontaneous perforation, almost at the commencement of the otitis.

M. BOULAY, in reference to the method of re-education devised by Urbantschitsch, indicated by MM. le Marc'hadour and Bruder as applicable to the deafness persisting after measles otitis, observes that no reference whatever has been made to this method.

AUTO-PLASTIC METHODS FOR THE TREATMENT OF RETRO-AURICULAR CICATRICES FOLLOWING RADICAL MASTOID OPERATIONS.

M. PAUL LAURENS. Two semi-circular incisions are made, the one anterior and the other posterior to the orifice, joining below and above it a centimetre beyond its poles. The flaps are detached and turned back after the form of two shutters, so that they cover

the orifice, their cutaneous surface presenting on the side of the middle ear. The two margins are brought together and sutured.

BILATERAL SUPPURATIVE MEDIAN OTITIS ATTRIBUTED TO THE POST-NASAL DOUCHE.

M. PERCEPIED. The patient was treated at Mont-Dore, and was twice affected with acute suppurative inflammation of the middle ear following the use of post-nasal douches.

CONGENITAL STENOSIS, IMPERMEABLE BY ORDINARY MEANS, BUT OPERATED ON AND CURED UNDER OESOPHAGOSCOPY.

M. GUISEZ. The patient, aged nineteen, from birth had narrowing of the oesophagus caused (as the author ascertained by oesophagoscopy) by a sort of pouch acting as a valve and almost completely obstructing the calibre of the tube, and having at its lower extremity nothing beyond a small filiform opening, which was the only means of communication with the stomach. Feeding was difficult and was confined to milk. There were several attacks of dysphagia, one of which called for gastrostomy. With the aid of the oesophagoscope the valve was cut under the control of sight. Dilatation was brought about by means of bougies, and had been kept up ever since. At present the patient was able to eat everything, whether liquid or solid.

In two other cases of narrowing the author brought about a cure by the same means, the gastric fistula being allowed to close.

DEMONSTRATION OF INSTRUMENTS.

M. BOSVIEL showed : (1) *A glass syringe for irrigation of the ears*, for the patient's own use. The liquid jet emerged obliquely from the extremity of the syringe and struck against the wall of the meatus instead of the membrana tympani, and after having washed the meatus it issued by a groove worked into the thickness of the point, which was pear-shaped.

(2) *Forceps for compressing the tonsil*, for treatment of acute tonsillitis by the method of compression, devised by Molinié and Vacher.

M. COURTADE, in order to soothe the pain in the course of tonsillitis, recommended the administration of salicylate of soda or salol (1 to 3 grm. in the course of twenty-four hours).

Meeting held on December 14, 1906.

DEMONSTRATION OF CASES.

M. FOURNIÉ. A child, aged eight, with an unmistakable *pharyngeal pulse*, attributable either to the carotid, or, more probably, to the pharyngeal branch situated and developed in an abnormal way.

M. G. GELLÉ said he had previously shown a case in which the vertebral artery followed the posterior wall of the pharynx.

M. FURET. A patient, affected with *tuberculous laryngitis*, greatly benefited by a series of galvano-cauterisations.

M. MAHU. A man, aged thirty-six, affected for two years with a spontaneous *naso-labial angioma* of the size of a small nut. This had been treated successively by means of electrolysis and interstitial injections of oxygenated water of the strength of twelve volumes, the angioma recurring each time. Two months ago it was removed surgically by the sub-labial route, and at present the face had returned to its normal appearance. The histological examination, however, suggested the possibility of it being an epithelioma, and the exhibitor asked the advice of his colleagues as to the possibility of this transformation taking place.

M. GLOVER had already drawn attention to the angioma which had undergone subsequent transformation into epithelioma, and he exhibited drawings in support of his views.

M. VIOLETT stated that one met with histological appearances simulating epithelioma at the level of varicose ulcers which had cicatrised.

M. LUBET-BARBON. A man, aged sixty-five, who had been under observation for a fortnight; he had a tumour on the right vocal cord which was papillated and imperfectly mobile, the rest of the larynx being sound. Under the influence of rest and some fumigations, the swelling disappeared in part, and the vocal cord became a little more mobile. Although a diagnosis of epithelioma had been made in the first instance, M. Lubet-Barbon asked the Society whether it might not possibly be a case of tuberculosis.

The Society was of the opinion that it was an epithelioma.

M. LERMOYEZ. A young girl who, during the menses, exhales an unpleasant odour at the nose and blows out some soft crusts at this period only. Nothing is found on examination of the nose and naso-pharynx, but after contraction, by the application of

adrenalin, there was discovered a small crust in the olfactory slit, and with the probe it was possible to enter the left sphenoidal sinus, of which the walls were rough and the anterior orifice considerably enlarged, as the result of caries. Dr. Lermoyez asked what he ought to do in these circumstances.

The Society came to the following conclusions: (1) to try specific treatment; (2) to remove the middle turbinal in order to facilitate supervision and the escape of the discharges.

M. CAUZARD. A woman, aged forty-nine, with nasal obstruction and swelling of the left cheek, which was hard, cold, and adherent to the bone. In the absence of dental or nasal cause for sinusitis, a puncture was made by the gingivo-labial route, which afforded exit to greyish fungosities of brain-like consistency; on palpation there was found to be perforation of the anterior wall of the sinus. M. Cauzard, while awaiting the result of microscopical examination, asked for the opinion of the Society concerning this tumour, which he himself considered to be malignant, and further concerning the advisability of proposing to the patient the removal of the superior maxilla.

M. LUBET-BARBON thought that in view of the gravity of the operation and the duration of the disease, it would be quite justifiable to submit the patient to a course of specific treatment (mercury and iodide) for a fortnight.

M. LE MARC'HADOUR was of the same opinion, having encountered an analogous case, with the loosening of the teeth, breaking down of the anterior wall, and a diagnosis of tubular epithelioma made by a skilled histologist, in which, in spite of all, complete cure followed the administration of iodide.

M. LERMOYEZ said that the inconvenience of the iodide, as such, was that it occasionally gave a fillip to the epithelioma by causing the absorption of the cellular barrier of connective tissue raised as a defence against the epithelial invasion, and as permitting the ectodermic neoplastic tissue to penetrate freely into the connective tissue spaces opened by the iodide. Mercury, on the contrary, was not injurious, and practitioners were quite satisfied with it before Wallace discovered, in 1836, the anti-syphilitic power of iodide. Dr. Lermoyez was of the opinion that in the present case there should be given, with an interval of a week, two intra-muscular injections each consisting of 5 centigrammes of calomel.

M. GUISEZ. Three patients operated on for old-standing fronto-ethmoidal sinusitis, and completely cured, without disfigurement, by the following method: A small opening was made into the

anterior wall of the sinus, just sufficient to permit of complete curettage, but the ethmoid was cleared out completely by the orbital route. The prominences of the frontal bone were completely preserved.

Meeting held on February 15, 1907.

The President, Dr. WEISSMANN, in the Chair.

DEMONSTRATION OF CASES.

M. CASTEX. (1) A woman, aged about sixty, with a diffused swelling on the posterior wall of the naso-pharynx and pharynx, resembling a retropharyngeal abscess. There was, further, a small perforation in the palate, and a history of numerous miscarriages, which indicated that the case was one of *diffuse gumma*. Intravenous injections of cyanide of mercury brought about a rapid improvement.

(2) A woman, aged fifty, with *an epithelioma at the base of the tongue*, the position of which suggested at first that it might be a tumour of the vestibule of the larynx. No glandular involvement, but considerable foetor of the breath.

(3) A case of *laryngeal tuberculosis* in a girl, aged thirteen, with diffused infiltration, but very little ulceration. The patient had two years previously renal tuberculosis, of which no symptom remained.

(4) Another case of *tuberculosis of the larynx* in an adult, with the special feature that the ulcerations were exactly limited to the cartilaginous portion of the glottis.

(5) A case of old *nervous aphonia*, complicated with amyotrophy of the vocal cords.

(6) A large *polypus*, which completely obliterated the right choana in a young man. Up to the present time the various endeavours to remove it had failed, whether by means of the snare or the post-nasal forceps.

(7) A woman, aged forty-five, whose menses had disappeared for eight months, and who from that time had, every day, slight *epistaxis*, without visible lesion in the nose.

(8) A child, aged one, with left-sided *facial paralysis* following suppurative median otitis. There is paralysis of the eyelid, but not of the palate.

M. PAUL LAURENS. A patient on whom he had carried out *autoplasty for a cicatricial orifice*, connected with the radical mastoid operation, according to the method which he had already described. The results are very satisfactory, the cicatrix being scarcely apparent, while the auricle remains at the normal distance from the lateral surface of the cranium. He dwelt upon the simplicity of his method.

M. LERMOYEZ. *A woman affected with facial paralysis subsequent to the removal of a sequestrum of the left labyrinth.* Six months later this paralysis was complete and total. There was total abolition of faradic and galvanic excitability of the left facial nerve, as also of faradic excitability of the muscles, the galvanic excitability of which was diminished, but presented the characters of the reaction of degeneration.

Anastomosis of the peripheral extremity of the facial nerve was made with the external branch of the spinal accessory before its bifurcation. This anastomosis was lateral—that is to say, there was no section of the spinal accessory.

At the present time, eight months after the operation, the results are commencing to be satisfactory. It is interesting to observe the condition of the facial muscles, improved but not altogether cured, as one can study the mode in which this abnormal innervation of the face becomes established.

During repose the asymmetry, which was previously considerable, is to a great extent lost, but the cheek remains flaccid, and the left eye a little more open than the right, the labial commissure being a little raised upon the right side. According to the patient's statement this asymmetry becomes more marked as the day goes on and as the patient gets fatigued.

The movements: (1) Of the face alone: during the closure of the eyes the left palpebral fissure remains open to the extent of 7 or 8 mm., the eyeball being raised. As regards the mouth there is complete immobility of the left angle.

(2) Isolated movements of the shoulder; no paralysis of the shoulder or atrophy of the trapezins or deltoid.

(3) Combined movements: (a) When the patient is not fatigued she closes the eye completely, while raising the left shoulder, and inversely she is obliged to open the eye when she lowers the shoulder. (b) When she closes her mouth alone the commissure is drawn to the right, but if she lifts the shoulder at the same time the mouth becomes symmetrical. (c) When she

raises the left shoulder while wishing to keep her face immobile, the facial muscles contract to a small extent on the left side.

M. Luc. *Crico-thyrotomy without anaesthesia and without tracheotomy tube on account of laryngeal epithelioma.* The patient is a man, aged seventy-two, of vigorous condition and good build. At the end of last January Dr. Luc discovered an epithelioma of the right vocal cord, the first signs of which dated from about sixteen months. The diagnosis was confirmed by the examination of a portion of the growth removed through the natural passages.

Although the aspect of the tumour was somewhat diffused, the cord having preserved a certain amount of its mobility, he endeavoured to remove it radically by a simple laryngo-fissure, with a view, if possible, of avoiding the dangers of the mutilation associated with laryngectomy.

The operation was performed on February 6, after the method of von Bruns (of Tubingen).

Half-an-hour beforehand an injection was made of a solution of hydrochloride of morphia and scopolamin; then an injection of several cubic centimeters of a solution of hydrochloride of cocaine, of the strength of 1 in 100, into the soft parts in front of the laryngo-tracheal tube and of the inter-crico-thyroid space. In the first place, the first ring of the trachea was incised, and then the cricoid cartilage, by means of the bistoury, and then a division of the mesial portion of the thyroid cartilage by means of a pair of shears. A firm plug, soaked with a solution of cocaine and adrenalin, was then introduced into the larynx in order to obtain ischaemia of the laryngeal mucous membrane. From the time of the opening of the superior part of the tract the patient was kept in Rose's position, and the tracheal wound was held partly open by means of fine retractors, air being unable to pass through the laryngeal cavity which had been plugged.

At the end of five minutes the plug was removed and the larynx inspected. Unfortunately the neoplasm was found to be much more extensive than the examination with the mirror had led the observer to suppose, and in particular it had extended to the arytenoid region and the opposite cord. As much of it as possible was removed by means of the bistoury and curved scissors, and the destruction of all suspected parts was carried out by means of the galvano-cautery. Iodoform was insufflated on to the bleeding surface; then the thyroid cartilage was sutured with two silver-wire stitches. The cutaneous wound was closed except at its lowest

part. The expired air passed in portion at this level, but it was easy to make sure, by momentary complete occlusion of the wound, that the laryngeal cavity was perfectly permeable to the air. For two days and two nights the patient was kept in a perfectly horizontal position. The first day he had no food by the mouth, and he refused rectal alimentation. The two following days he was given from time to time a few teaspoonfuls of sweetened water with a little brandy, which passed down easily. From the fifth day he had milk, beef-tea, and eggs.

There was no fever after the operation, and at the present time (ten days later) the wound has completely cicatrised, and the patient is able to come out to be shown to the Society.

In view of what was found at the time of the opening of the larynx, Dr. Luc is of the opinion that a recurrence of the growth is inevitable, and, therefore, from next week he will be handed over to the care of M. Le Bec, with a view to total laryngectomy being performed.

In spite of its incompleteness the history of this patient is most instructive, because it shows, in accordance with what von Bruns has taught, that it is possible to carry out crico-thyrotomy with merely local anaesthesia and without a tracheotomy tube, and further, the extreme simplicity of the after-treatment of the operation as thus carried out. It is, further, another demonstration of the importance of early operation in laryngeal cancer, and of the difficulty of deciding by laryngoscopic examination as to the real extent of the lesions.

M. MOUNIER. The patient, with regard to which M. Mounier asks the opinion of his confrères, presents lesions characteristic of *hereditary syphilis of the nose*, from the age of fourteen years. When he saw the patient for the first time, about a year ago, he had just lost his turbinated bones and his septum. At the present time he has been seeking advice on account of his nasal obstruction, and M. Mounier is considering whether it should be relieved by operation through the natural passages or by the incision, as carried out for the radical treatment of sinusitis of the antrum, the obstruction being caused by an enormous fibro-mucous polypus which can be seen in the nasal fossa.

The point of implantation of this tumour seems to be the sinuso-nasal septum, and perhaps the sinus itself.

DUNDAS GRANT (Trans.).

PROCEEDINGS OF THE LARYNGOLOGICAL
SOCIETY OF LONDON.*One Hundred and twelfth Ordinary Meeting, March 8, 1907.*J. B. BALL, M.D., *President, in the Chair.*HENRY J. DAVIS, M.B., }
W. JOBSON HORNE, M.D., } Hon. Secretaries.

Present—45 members and 2 visitors.

The minutes of the previous meeting were read and confirmed.

The ballot was taken for

ALEXANDER R. TWEEDIE, F.R.C.S.,

who was elected an ordinary member of the Society.

The following communications were made :

MICROSCOPICAL SECTIONS OF NASAL POLYPI EXHIBITING PECULIAR
SPIRAL AND KNOTTED THREADS OF (?) MUCUS IN THE SUBSTANCE
OF THE GLANDULAR DILATATIONS.

Shown by Dr. HUGO LÖWY (Carlsbad) to illustrate a condition which, so far as he knew, had not been previously demonstrated. In the cysts and dilatations of the glandular structure scattered over the preparation were to be found, in the midst of the mucus and cells, threads of a peculiar twisted and knotted shape. These were partly spiral, and it had been ascertained that they consisted mostly of mucus, so as to be suggestive of the spirals in the bronchial mucus of asthma. Dr. Löwy stated that the sections had been fully described in his contribution to the *Schroetter-festschrift*,¹ and that he therefore need not take up time by entering into details. He showed the sections in order that the members might form their own opinions. Dr. Löwy stated that some years ago after making this pathological observation he entered upon a systematic research of nasal polypi which were found to contain cysts, and, after a long and laborious search, he was successful in finding an analogous condition in another case. An example from both cases was placed under the microscope. By the side of the specimens was placed a sketch of the part exhibiting the threads.

¹ *Zeitschrift für Klinische Medizin*, Bd. lxii.

Dr. Löwy regarded them as mucus worked up into thread-like structures by movement in the glandular tubes, brought about by variations of pressure on the polypi during respiration, similar to the formation of asthma spirals, but any other explanation might be offered without altering the value and the morphological interest of the observation.

Dr. H. PEGLER said the Society was much indebted to Dr. Löwy for bringing up these specimens. There were no sections of polypi in the Society's collection with which he could compare them, nor could he throw any light on the condition, but he agreed that these spirals were a peculiar form of coagulated mucus; and the surrounding conditions deserved investigation, particularly the dilated ducts that were so characteristic of these sections.

Dr. Löwy, in reply, said that he, like those to whom he had shown the specimen, was unable to offer any further explanation. It was difficult to say why only that part of the mucus which formed the threads had taken the haematoxylin stain: the threads were not distinctly separated from the surrounding mucus, but connected with it with irradiant lines of transition, and possibly might have acquired some chemical or physical property which enabled them to take the stain in the course of their formation. The mucus immediately surrounding the threads sometimes presented a more homogeneous appearance, like a mantle, different from the more distant mucus, containing more cells. The formation he had described and the analogy he had pointed out seemed not to be without interest in general medicine.

A CASE OF FISSURES ON THE TONGUE.

Shown by Dr. H. J. DAVIS. The patient, a man, aged twenty-two, presented oblique symmetrical fissures on the dorsum of the tongue. The possibility of the condition being due to lymphangioma or congenital causes was suggested.

The PRESIDENT said he rather doubted whether the condition was lymphangioma.

Dr. DE HAVILLAND HALL said he had seen similar fissures in the tongues of chronic dyspeptics, and had looked upon the condition as the outcome of the dyspepsia. He had had no idea that they might be regarded as congenital.

Dr. F. W. BENNETT said he had known cases with very marked fissures without any dyspepsia, and in one certainly the fissures had lasted all through life. He thought the present case was more likely to be congenital.

Dr. DAVIS, in reply, said the patient did not come to the hospital complaining of his tongue, but because of trouble in his nose. Cases of dyspeptic tongue usually had some symptoms referable to the tongue; discomfort there at least was complained of. This patient said he had always had the fissures since he could remember. He (Dr. Davis) believed the lateral parts of the tongue were said to be developed from the muscle plates of the visceral arches. There was also a malformation in the patient's soft palate which supported the view that the case was congenital. One of his surgical colleagues regarded it as lymphangioma.

A CASE OF PAPILLOMATA OF THE LARYNX (SHOWN NOVEMBER, 1906).

Shown by Dr. DAVIS. The patient was a girl, aged nineteen. When brought before the Society last November, the larynx was crowded with papillomata; these were removed by forceps and snare. The vocal cords were now red, and aphonia persisted. Suggestions as to further treatment to improve the voice were invited.

The PRESIDENT thought the voice was now very good and that the patient would not require treatment if the papillomata did not recur. She ought to be satisfied with the voice she now had.

Mr. F. J. STEWARD asked whether any special treatment had been used in the case with a view of preventing recurrence of the condition after removal.

Dr. DE HAVILLAND HALL was inclined to advise leaving the case alone now. She seemed satisfied with her voice, which appeared to be in a fairly healthy condition, and he would not irritate the cords by any local treatment.

Dr. DAVIS, in reply, said when first shown she had a mass of papillomata, which it was suggested should be removed by thyrotomy. However, he tried several times with forceps and the snare and got it all away. Some attached to the cords were removed with Dr. Dundas Grant's forceps. She was now able to breathe quite well, but her voice had not recovered, though it was very fair that day. The only local treatment he had applied was lactic acid (40 per cent.) by means of a miniature laryngeal spray used by the patient. She still had chronic laryngitis, which did not seem to have recovered as rapidly as it might.

A CASE OF TUBERCULOSIS OF THE LARYNX IN A WOMAN, AGED THIRTY-THREE.

Shown by Mr. CHARLES PARKER. This patient was first seen seven years ago with tuberculosis of the larynx and slight physical signs at the right apex, which were first noticed immediately after the birth of her fifth child. She was shown to the Society in February, 1905, as an example of a woman who had commenced pulmonary and laryngeal tuberculosis during pregnancy and had survived four subsequent pregnancies. Since 1905 she had had one further pregnancy, ending in a miscarriage. In all she had had ten conceptions, including four miscarriages, and of the six children born alive three had died of tuberculous meningitis. This history suggested tuberculosis in the mother. Two years ago, when the case was shown, several members of the Society maintained that the appearance, at that date, suggested a chronic inflammatory thickening.

Mr. Parker had lost sight of the patient until last Christmas, when she was admitted into hospital with urgent dyspnoea. Then

both the supra-glottic and subglottic regions were filled with what appeared to be chronic inflammatory overgrowth. With rest in bed and mercurial injections the swelling had so far subsided as to put the patient out of danger of suffocation, but there were still present large masses of this inflammatory overgrowth. Mr. Parker asked for an explanation of this transition from what was almost without doubt originally a tuberculous infiltration to the present condition of chronic hyperplasia. He would also like suggestions as to the treatment, though he felt inclined to leave the local condition alone.

ABSCESS OF THE RIGHT FRONTAL LOBE, SECONDARY TO CHRONIC BILATERAL FRONTAL AND ETHMOIDAL SINUS SUPPURATION.

Shown by Dr. W. MILLIGAN. The patient, a girl, aged twenty, was sent to me on account of persistent purulent discharge from both nasal passages and intermittent frontal headache of several years' duration. Examination showed that both frontal sinuses and both ethmoidal labyrinthis were the site of suppurative disease. After a short preliminary antiseptic treatment both frontal sinuses were operated upon according to the Killian method, at the same time both ethmoidal labyrinthis being opened up and drained. The operation took place upon October 11, 1906. The patient made excellent progress up to November 6, when she had a severe attack of septic tonsillitis which lasted for a few days. From November 13 to November 27 she appeared to be in good health, complaining only of a dull feeling in the head. She was able to assist in light ward work and appeared cheerful. The temperature was normal, the pulse regular, and there was no tendency to sickness or vertigo. There was still slight discharge from the right nasal passage of a distinctly foetid character. The left frontal sinus had entirely healed up and there was no discharge in the left nasal passage. Upon November 27 her temperature suddenly rose to 101·8° F., and she complained of intense headache. Upon the morning of the 28th the temperature was 97·4° F. A careful examination was made under an anaesthetic, and search made for the source of pus from the right nasal passage, without, however, any definite result. By December 8 her temperature was again normal, and remained so until December 20. Upon the morning of December 20 she had a severe shiver, and her temperature rose to 101° F., while her pulse was 92. Her headache became very severe and distinct double optic neuritis was found. A lumbar puncture made the following day showed an opalescent

cerebro-spinal fluid. For the next few days the temperature varied from 100° F. to 103° F., and the pulse from 80 to 108. The patient rapidly sank into a comatose condition and died upon the morning of December 26.

A *post-mortem* examination made twenty hours after death revealed diffuse suppurative pia-arachnitis over the base of the brain, especially over the under surface and lateral portions of the right frontal lobe. Upon the under surface of the right frontal lobe a small abscess cavity was found containing very foetid pus. This abscess cavity communicated with the general pia-arachnoid cavity and by a minute fistulous tract with the posterior ethmoidal cells. The discharge, which persisted in the right nasal passage after the first operation, was doubtless oozing gradually from the frontal lobe abscess.

Dr. STCLAIR THOMSON congratulated Dr. Milligan on giving the Society the lesson to be learned from the case. He had had a similar one, and as it had not been published he brought the brain to show. A transverse section across the frontal lobe showed the abscess in the centre of the frontal lobe on the left side. There was no direct macroscopic connection with the frontal sinus; the pus had recently burst through the left side, and trickled down into the anterior fossa. But it was evidently a latent abscess in the frontal lobe. The patient was up and about seven days after he did a Killian operation on the left side. She was so relieved that she was most anxious to have the other side done. Her headache set in 16 to 18 days after the operation, and death occurred four weeks after operation. Dr. Milligan's case, like his own, showed the risks run by surgeons in serious operations on the sinuses, because, except that she fainted in the ward and was considered to have funny manners—being regarded as somewhat hysterical—there was no evidence that she had the abscess. The surgeon was apt to blame himself, and certainly the friends were apt to blame him, believing the fatal result to be due to the traumatism, whereas in Dr. Milligan's case the time which had elapsed—longer even than in his own—was sufficient to show that it was a latent abscess, although the traumatism might have precipitated the fatal termination.

Mr. HERBERT TILLEY said that one point which both the cases illustrated was that which had a bearing upon treatment in those cases. Affections of the meninges and frontal lobes did not occur as frequently from the frontal sinus as from the ethmoidal cells. In the literature of the subject it would be found that in the vast majority of cases the fact seemed to be established. Therefore in the operation it was very important to thoroughly clear the ethmoid region. For thirteen years he had been looking for a case of abscess in the frontal lobe due to pure frontal sinus suppuration, but he did not think he had yet seen one. He thought he had experienced one a month ago when he saw a man in a very depressed condition, which was ascribed to his mother having died very suddenly a week before. Since that event he had not spoken to anyone. A small operation had been performed on his ethmoidal region a few weeks previously, and there were some indications that suppuration was still going on there. The case was difficult of diagnosis because it was

impossible to separate the effect of the disease from his domestic trouble. Three days afterwards the man became comatose and died. *Post-mortem.*—A large abscess was found in the frontal lobe, but it was proved that it came from the ethmoidal region. If ethmoid suppuration was efficiently dealt with the frontal sinus disease would rarely cause fatal complications.

Dr. SCANES SPICER desired to repeat what he had often said before—how desirable it was in his opinion to thoroughly attack the middle turbinated and break down and drain the ethmoidal cells, especially the anterior group, before operating on the frontal sinus from the outside. He asked whether that was done in Dr. Milligan's and Dr. StClair Thomson's cases; did they resect the middle turbinated body and break down the anterior ethmoidal cells before tackling the frontal sinus from the outside? He must have had great good luck in his frontal sinus cases, as he had had no experience of any of the serious extensions referred to by other workers—at least, it was good luck unless, indeed, the avoidance of such extensions were the result of the antecedent ethmoidal drainage. If what he recommended were done, he believed, moreover, that Killian's, as well as other external, operations would be less needed.

Dr. PERMEWAN said he thought Dr. Scanes Spicer's luck consisted rather in not having found a latent frontal abscess, than in the method which he adopted. Dr. Spicer seemed to take the view that Dr. Milligan and Dr. StClair Thomson produced the abscess in their cases; whereas the notes made it clear that the abscess in each case was there before. All had probably seen cases of abscess thought to be due to frontal sinus cases which might perhaps be attributable to ethmoid cell-disease. Another lesson furnished by the cases seemed to be the need of trying to discover whether there was any intracranial suppuration before attempting operation on the frontal sinus. It was not easy to discover abscess in the frontal lobe, but it was well to bear it in mind.

Dr. WATSON WILLIAMS said he did not think many would be inclined to subscribe to the suggestion of Dr. Scanes Spicer that in such cases where it had been decided that an external operation on the frontal sinus was necessary the suppurating ethmoidal cell should be cleared away before doing the major operation on the frontal sinus. He thought one should avoid attempting to deal with suppurating ethmoidal cells, except the anterior and lower ones, until the frontal sinus was opened, when the cells could be attacked from the front, and when it was so much safer to be thorough in their removal. And, *à propos* of his own case that day, it could now be done with comparative safety.

Mr. WESTMACOTT agreed with Dr. Scanes Spicer that in the majority of cases one could deal with the ethmoidal labyrinth, especially the anterior division, from the interior of the nose. He had come across two chronic cases only in which he had been obliged to do an external operation, and that experience was borne out by Hajek, of Vienna, who said that the external operation was required for only a very few cases. It was principally the anterior ethmoidal labyrinth which was affected with the frontal sinus, and that which mostly caused the intracranial abscess, subdural, or in brain matter, infection occurring either through a perforation of the posterior and upper wall of the frontal cavity or the cribriform plate of the ethmoid.

Mr. E. B. WAGGETT desired to speak in the same sense as Mr. Westmacott. Not only the anterior, but the posterior ethmoidal cells were easy to attack by the nasal route. Frontal sinus operations were very delightful to do, but a good many of the cases were not quite dry

after the operation. He thought the cases attacked by the nasal route had, as a general rule, as good a result so far as clinical symptoms were concerned as those done by external operation.

Dr. FITZGERALD POWELL said that he understood that in Dr. Thomson's case the abscess occurred eighteen days after the operation, and in Dr. Milligan's case six weeks after. This rather gave one the idea that possibly the infection might have occurred at the time of operation. There was some doubt as to whether frontal sinus suppuration was responsible for the causation of latent frontal abscess, some holding that it was due to infection from the ethmoid suppuration. In some cases of frontal sinus suppuration which he had operated on there had been an opening leading from the frontal sinus to the meninges. No frontal infection had taken place. He would not like to say that the present frontal abscess was due to infection nor to the operation from the facts before them, but, of course, no blame attached to the operator.

Dr. STCLAIR THOMSON regarded Dr. Tilley's remarks as an expression of opinion, but he did not see how it was proved that the ethmoidal cells were the cause, and not the frontal sinus. He had made, from literature, a collection of thirty or forty cases of spontaneous abscess in the frontal lobe, where there was no traumatism, and where it was shown that the frontal sinus was the source of the latent abscess in the frontal lobe. Hajek had said that from the ethmoid one got meningitis; from the sphenoid, meningitis and thrombosis of the cavernous sinus; and from the frontal sinus, frontal lobe abscess. If Dr. Tilley was speaking of traumatic abscesses he agreed with him; but it was shown by the spontaneous cases that the frontal sinus was the chief cause of latent abscess in the frontal lobe. As to the frontal operations being necessary, he would be glad to send anyone six cases from his clinique in which he had cleared out the ethmoid—he always did as Dr. Scanes Spicer had suggested—under chloroform as thoroughly as possible; but it was impossible to clear out the fronto-ethmoidal cells from the nose, and that was why Killian introduced his operation. Those cases which he had done had been relieved of their obstruction and polypi, and there was very little left, except the fronto-ethmoidal cells, and those cases still had a discharge. He would be glad to hand them over to anybody. They were hospital cases, and were begging for relief.

Dr. MILLIGAN, in reply, said he thought there was no question that his case was a latent abscess. He did not take the credit of having produced it. As a fresh specimen it was quite obvious that it was a chronic abscess-cavity in the frontal lobe, and the history of the case lent support to that view. He admitted he did not diagnose the abscess, but if he had done so he did not know what operation would have been successful. The importance of the ethmoidal cells as a causative factor in frontal lobe abscess was uncertain; only few recorded cases had been brought forward. He had seen one other case in which the cause of the abscess was the frontal sinus, because there was a direct communication between the abscess and the frontal lobe. With regard to clearing out the middle turbinate region first, sometimes he did that, but he had not done so in this case. He did not see any particular advantage in it when one had to do a fairly extensive operation afterwards. All could just as well be done at one sitting. With regard to Mr. Westmacott's remark about such operations being unnecessary, that gentleman's experience seemed to have been most fortunate. He had many times tried to deal with such cases through the nose, but had failed to cure them. He thought

one could guarantee a cure with a properly-conducted Killian, but there seemed to be some diversity of opinion, as shown by practice, as to what a Killian was. There were many cases in which operation was urgently called for; they were almost entirely in hospital patients, who were unable to do their work, having severe frontal headache and an uncomfortable purulent discharge from the nose, which he regarded as legitimate indications for operation. It was rare to have a bad result.

A CASE OF EXOSTOSIS OF THE FRONTAL SINUS.

Shown by Dr. W. MILLIGAN. The patient, a male, aged sixty, consulted me in 1897, complaining of bilateral nasal obstruction, nasal discharge, and intermittent frontal headache. Examination showed the presence of nasal polypi. Under an anaesthetic a radical operation was performed, the growths being removed, and the middle turbinate body, together with the anterior group of ethmoidal cells, being scraped away with a Volkmann's spoon.

For seven years no inconvenience of any sort was complained of. In 1904, however, the patient had again slight nasal obstruction, and was treated by a medical friend, some small oedematous buds of granulation tissue being removed. A small exostosis was noticed at this time.

In December, 1906, he again came under my care, and was found to have a large, bony growth springing apparently from the left frontal sinus, and encroaching upon the left nasal passage and left orbital cavity. The left eye was displaced outwards and downwards, and the conjunctiva was injected. Vision was perfectly normal. The growth was very hard, and appeared to be firmly attached to its point of origin. An X-ray photograph was taken.

As the patient was aged—now seventy—and as there was no real discomfort complained of, the advice given was to wait for two months so as to watch the progress of events. At the beginning of February the patient again presented himself for examination. Pain was complained of at the back of the left eye, the conjunctiva was deeply congested, and the eyeball was displaced still further downwards and outwards. Operation was now advised. The patient was accordingly put under an anaesthetic and a supra-orbital incision made, as if for opening the frontal sinus. The bony arch of the orbit was chipped away in the neighbourhood of the exostosis, and the frontal sinus opened. The growth was found to spring from the floor of the sinus, and to have a fairly broad attachment. Within the frontal sinus there was a considerable amount of muco-purulent secretion, and also an oedematous mucous polypus. By somewhat forcible traction and leverage the growth

was removed. The sinus was now cleansed and packed, the incision being almost entirely sewn up with the exception of its extreme lower limit. Progress since the operation has been quite uneventful, and the eyeball now practically occupies its normal position.

A CASE OF VERY EXTENSIVE PAPILLOMATA OF LARYNX (SPECIMEN EXHIBITED).

Shown by Mr. BETHAM ROBINSON. The specimen was obtained from a little girl, aged five, who was under treatment in St. Thomas's Hospital at different periods between March 12, 1904, and January 2, 1907, the date on which she died. On admission there was the usual history of difficult breathing and only a whispering voice. Examination was impossible without an anaesthetic, and on March 19, while this was being attempted, she suddenly stopped breathing, and tracheotomy had to be done. It could then be made out that there were very numerous papillomata all over the upper aperture of the larynx and also on the vocal cords. On March 23 many growths were removed intra-laryngeally, and this was repeated on April 13. After this the tube was removed. The wound healed by the 21st, and she was sent out. She had to be re-admitted on May 14 for severe dyspnoea, and had to be intubated. Further growths were removed intra-laryngeally, and this was repeated on July 9 and 23. On August 27, while away on my holiday, she had become so obstructed that the tracheotomy wound was re-opened and a tube inserted. On September 15 I did thyrotomy, removing all the evident growths with scissors and cauterising their bases. The tracheotomy tube was retained, but removed on the 20th, and the wound was healed by the 30th.

The breathing remained now free, and there was improvement in the voice during the next three months. At the beginning of January there was more obstruction and fresh growths seen, so on the 6th they were again removed intra-laryngeally, which had to be repeated on February 11. In my absence on February 27 she suddenly became moribund, and laryngotomy was done. After this I again removed growths with the forceps, and was able to dispense with the tube. From then to the end of May she did well, and was out of hospital, but at the beginning of June she was admitted with broncho-pneumonia. Obstruction was so marked on the 16th that she was intubated, and the lungs having cleared

more growths were removed with forceps on July 5. There was another period of respite till another sitting was necessary on October 31.

The rest of the history may be summed up by saying that there were varying periods of comfort followed by increasing difficulty of breathing, as a rule, demanding instant relief. For this an intubation tube was introduced, and I followed this by clearing the growths away as thoroughly as possible with forceps. During 1906 there were nine removals with forceps, the last one being on November 14. After this date she had seemed very much better, but at the end of the year the breathing was again becoming bad. She died quite suddenly on January 2 before any relief could be given.

All the endo-laryngeal operations (nineteen in all) were done in the sitting position, under chloroform, with Mackenzie's forceps, both those cutting antero-posteriorly and laterally being used. Powdered alum and a weak formaline spray were used from time to time without apparently diminishing the growths.

The specimen shown is a very interesting one, demonstrating how widespread the growths are distributed, and how hopeless was the task of completely eradicating the disease. They are situated not only all round the upper orifice of the larynx, and in the larynx in profusion, but they spread downwards over the pharyngeal surface of the cricoid to the oesophagus; there are scattered patches also on the posterior part of the tongue and on the tonsils.

At the autopsy there was some collapse of lungs and some suspicious patches of caseating tubercle. The bronchial glands were definitely tuberculous, and at the roots of the lungs there were tuberculous nodules spreading inwards along the septa. There was also a doubtful tuberculous deposit in the spleen. It is an interesting speculation whether the papillomatous growths themselves were of tubercular origin; those examined gave no evidence, however, of such being their nature.

The PRESIDENT said he thought the excellent photograph of the case which had been handed round might very well be reproduced in the *Transactions*.

RHINO-SCLEROMA OF THE NASO-PHARYNX IN A POLISH GIRL, AGED NINETEEN.

Shown by Dr. STCLAIR THOMSON. It is difficult to give a history



Photograph of the specimen showing the base of the tongue and the upper orifice of the larynx displayed from behind by opening the pharynx and œsophagus. A piece of glass rod is passed into the orifice of the larynx. The papillomata are seen to be very freely distributed over the epiglottis, the ary-epiglottic folds, and the back of the larynx; they also pass outwards into the pyriform sinuses and downwards over the back of the cricoid into the œsophagus. There is to be seen a polypus in the œsophagus.

TO ILLUSTRATE MR. BETHAM ROBINSON'S CASE OF PAPILLOMATA OF THE LARYNX.

Communicated to the Laryngological Society of London March 8, 1907.

of this case as the patient only speaks Polish, and communication has only been possible through one of her compatriots, who speaks very little German. It seems that for six or more years she has had increasing difficulty in nasal respiration. Some four years ago an operation was performed in Dr. Heryng's clinic in Warsaw, with some relief. But latterly the nasal obstruction has been increasing.

The patient complains of nasal obstruction and difficulty in clearing the nostrils of mucus. There is complete anosmia, but no interference with hearing.

The nasal chambers show a pale hypertrophy of the turbinals, with much stringy mucus on the floor; nothing abnormal is seen in the pharynx or larynx. With the post-nasal mirror a red, fleshy diaphragm is seen extending from the base of the soft palate upwards and backwards to the junction with the roof, and posterior wall of the cavum pharyngeum. There is an oval diaphragm in the centre of this fleshy membrane through which can be seen a small part of the posterior edge of the septum. This membrane bleeds when touched with a probe, and to the finger it is of cartilage-like hardness.

Although we have not yet obtained a portion of the growth for histological and bacteriological examination, this would appear to be a case of true rhino-scleroma. Apparently most cases have some manifestations in the nose, but the disease may begin primarily in the naso-pharynx. The first case published in this country was that of Payne and Semon in the "Transactions of the Pathological Society," vol. xxxvi, 1885. The only other case shown before our Society is that of Dr. Dundas Grant, published in the *Proceedings*, vol. vii, April 7, 1900.

I should be very pleased to have the opinion of members, especially in regard to treatment.

Mr. C. A. PARKER asked what Dr. Thomson founded his diagnosis upon. He had only seen one case, and that was not in the post-nasal space. His idea was that rhino-scleroma was a red, smooth-surfaced infiltration, whereas in the present case the swelling looked rough and uneven, more like a growth filling up the naso-pharynx.

Dr. STCLAIR THOMSON, in reply, said it must be remembered that the case had been operated upon, and there was a distinct hole in the middle of it, through which one could see the posterior edge of the septum. He founded his diagnosis on the appearance of the diaphragm and the extreme cartilaginous feel of it. There was a history that it had recurred after operation when it was partly relieved. He overlooked the case the first time it came to his clinique, but the cartilaginous feel revealed the condition.

ENDO-LARYNGEAL GROWTH IN A MAN, AGED TWENTY-NINE.

Shown by Dr. STCLAIR THOMSON. This patient denies specific disease, and has never been ill before. He has been hoarse for ten months, with some occasional slight pain on the right side of his larynx, running up to the ear. He states he had not lost flesh, but has gained till lately. The patient was under the care of Mr. C. E. Bean, of Plymouth, who has watched the growth increasing, especially in its tendency to fungate, in spite of iodide of potassium up to 45 grs. a day and mercury. Chest examination is negative.

It will be seen that there is a fungating infiltration of all the right vocal cord, the anterior commissure, and part of the left vocal cord. The growth, in parts, has a necrotic, white look. There is a small gland to be felt on the right side of the larynx.

The points to be submitted are—(1) Is this a malignant growth in spite of the early age? (2) Should a part be removed for operation? and (3) Would thyrotomy afford any prospect of complete relief?

Recent loss of weight and strength, together with pallor of the mucous membranes, rather pointed to the diagnosis of tuberculosis.

Dr. PERMEWAN regarded the case as tubercular.

SO-CALLED PROLAPSE OF THE VENTRICLE OF MORGAGNI IN A WOMAN, AGED FIFTY.

Shown by Dr. STCLAIR THOMSON. The title of the case describes it.

INFILTRATION AND ULCERATION OF THE UVULA IN A MAN; TUBERCULAR.

Shown by Dr. STCLAIR THOMSON. Without the previous history of the case it would have been difficult to have diagnosed this condition simply from appearance. The patient came to me some weeks ago complaining simply of sore throat. The uvula was then replaced by a large, irregular, firm, pale infiltration, with a sloughy ulcer running across the base of its attachment to the soft palate. There were no glands, no fever, and no general reaction. On the palatal side of the sloughy ulcer there was an irregular, half-inch margin of bright red hyperaemia. In the post-nasal space it was seen that the disease did not spread higher up than the uvula.

Although rapidly improving the condition well shows that one might have the suspicion that it was of specific origin. But the patient for over a year has been under treatment with a tuber-

culous ulcer on the left arm. The tubercular nature was proved by histological examination. This ulcer exposed the tendons, and was so deep and wide that no other remedy was suitable except tuberculin injections, which were given under the control of the opsonic index. It was some time after this ulcer had healed over that the pharyngeal condition developed. He has had no other treatment for the latter beyond peroxide gargle, and it is rapidly healing up under renewed tuberculin injections. The patient has no pulmonary or general symptoms.

I think his condition is distinctly tubercular, and although lupus is common enough in the pharynx it is rare to meet with what we clinically call tuberculosis of the pharynx except in the last stage of pulmonary phthisis. If we depended, however, on other than the simple appearance, I think it would be difficult to diagnose the present condition from that of a tertiary ulcerating infiltration.

Dr. WATSON WILLIAMS said he was struck with the remarkable resemblance between the case and one which was under his own care for some time, and which he demonstrated as a tuberculous lesion. She went to a sanatorium and was restored, but in spite of various curettements and other treatments the throat lesion did not clear up. She was a young woman above reproach, and unmarried. Yet when given iodide of potassium the whole thing cleared up. Unless Dr. StClair Thomson had given iodide of potassium he strongly suggested it, as it was not a typical tuberculous ulcer, and some features of it looked like those of syphilis.

Mr. CRESSWELL BABER thought the lesion was syphilitic, and recommended that iodide of potassium should be pushed. A supposed tubercular affection of the pharynx often turned out to be syphilitic.

Dr. STCLAIR THOMSON, in reply, said the man had had no treatment, but was getting well under tuberculin injection.

A CASE OF LUPUS OF PALATE AND LARYNX TREATED WITH TUBERCULIN R.; IMPROVEMENT.

Shown by Dr. E. A. PETERS. F. M——, admitted to hospital November 21, 1906, for lupus of larynx, pharynx, enlarged submaxillary glands, and tuberculide of the left leg; she had been previously treated elsewhere with arsenic for three months, and had not improved.

Dr. Rees injected .0002 T.R. in the positive phase at intervals of fourteen and six days. This treatment was followed by the administration of arsenic, but this was withdrawn when slight sickness and pyrexia appeared.

February 13, 1907.—There was inspiratory and expiratory stridor, due to large, flabby excrescences in the larynx. The glands

were smaller and the chest sound. The upper edge of the palatal area was quieter, and the tuberculide on the leg had healed over in the centre and at one edge.

At present the stridor has disappeared and cicatrisation is very marked. The tuberculide has healed over, and the patient is receiving arsenic.

Dr. MILLIGAN suggested the advisability of tracheotomy, so as to ensure laryngeal rest.

Dr. STCLAIR THOMSON said he thought the result was very poor, and he said that with sympathy, because he put several very promising cases of lupus, limited entirely to the air-passages, under tuberculin treatment controlled by the opsonic index. Not one of them had been made better by the treatment, but one or two were distinctly worse. In one patient, each time she had an injection fresh nodules of disease appeared. The cases had, however, done well on galvano-cautery puncture.

Dr. PETERS expressed his thanks to Dr. Milligan and Dr. StClair Thomson for their remarks, and said he would bring the case forward again for observation.

FUNCTIONAL PARESIS OF THE PALATE.

Shown by Dr. E. A. PETERS. T. M—, aged twenty-four, five months ago was attacked with laryngitis, when she noticed her voice change. At times her voice is quite normal. She now suffers with a choking sensation in the throat. There is some vaso-motor rhinitis of the nose, and the palate is slightly full.

On attempting to phonate all the palate moves slightly, but the "pits" are only brought into evidence on stimulating the palate with a probe or requiring her to take a deep breath.

If the palate is stimulated while she phonates her voice loses the accent. There has been no evidence of diphtheritic trouble.

Dr. PEGLER regarded this as an interesting example of simulated or functional nasal obstruction, and questioned if the term functional paresis of the palate described the condition fully enough. In addition to a tardy contraction with dimpling, on stroking with a probe, there was sometimes spontaneous contraction of the velum, and then the "rhinolalia clausa" was well marked. In the functional paresis commonly seen with true nasal obstruction there was no such contraction, and the speech defect was of the opposite kind (r. aperta). He had recently been consulted by a lady in whom the prevailing pose of the soft palate was one of contraction, and the rhinolalia so marked that she was constantly credited with suffering from a bad cold in the head. The most rational way of regarding this condition appeared to be as one of mal-co-ordination of the palatal muscles, with consequent interference with their normal action during speech. It was analogous to the disordered co-ordination of the laryngeal muscles in functional aphonia, as evidenced by the fact that the two conditions, palatal and laryngeal, are sometimes associated.

Dr. PETERS, in reply, said he regarded it as functional paresis, very

much on the same lines as functional aphonia. He believed there were all grades of the condition. He had several cases under his care. The present case had more œdema of the palate than usual.

TRACHEOTOMY FOR LARYNGEAL OBSTRUCTION, REMOVAL OF FIBROMA
BY SPLITTING CRICOID; UNRELIEVED; LATER THYROTOMY AND
REMOVAL OF ANOTHER FIBROMA.

Shown by Dr. E. A. PETERS. G. P—, aged six. Admitted to hospital June 6, 1906, for difficulty of breathing, which came on quite suddenly, after the voice had failed six weeks. Under an anaesthetic a white swelling appeared in the larynx, and tracheotomy was performed on June 13. On July 8, the cricoid was divided, and a smooth, white fibroma, the size of a hazel-nut, was removed from the anterior end of the right cord. During the manipulation something seemed to slip between the cords, but as the lower edge of the cords were seen to be free, the cricoid was stitched up. On October 11, as obstruction still persisted, thyrotomy was performed, and another fibroma, the size of a hazel-nut, adherent to the anterior end of the right cord was removed. The child has made a good recovery.

Dr. PETERS asked what the experience of members was in such cases. He learned that in children it was usual to split the cricoid, and remove the growths in that way, which was more desirable than doing thyrotomy. He did that in the present case, and it meant an additional operation, as he had to do thyrotomy eventually, and that was successful.

A CASE OF FRONTAL SINUS DISEASE, SHOWN ON JUNE 1, 1906;
KILLIAN'S OPERATION.

Shown by Dr. E. A. PETERS. A. W—, aged forty-six, last year presented an intractable sinus beneath right supra-orbital ridge. A probe failed to enter the right frontal sinus from the nose, but the left frontal sinus was patent and contained pus, which was also present in the right nostril. A radical cure for a suppurating left antrum had been previously carried out.

Dr. STCLAIR THOMSON suggested that a double Killian's operation should be performed, and the patient was now shown with an aluminium style *in situ* on the right side. There is no pus in the nose. There was no frontal sinus on the right side, but extensive fronto-ethmoidal and ethmoidal disease on both sides.

Mr. HERBERT TILLEY thought probably the sinus was possibly due to a septic ligature placed on one of the vessels while the operation was

being performed. Dr. Law would remember a case in which they (the speaker and Dr. Law) had an absolutely identical condition. For many weeks a suppurating fistula baffled all attempts to close it, until a small stitch came away, and the wound healed in three days.

Dr. LOGAN TURNER agreed with Dr. Milligan that the term "Killian" was often used in a loose way. He would like to know if Dr. Peters had obtained proper access to the frontal process of the superior maxilla through an incision such as the patient showed, and whether he had really done a Killian, as the title of the operation suggested.

Dr. PETERS, in reply, said it practically was a Killian. He always opened the infundibulum and worked up from that. The incision was more extensive than it now appeared to have been. He got a very free opening there by retracting the parts. He left the bridge there, but the anterior and inferior walls of the frontal sinus were removed. The ethmoidal cells, which were full of pus, were scraped and nibbled away as far back as the sphenoidal sinus.

CASES OF CHRONIC FRONTAL SINUSITIS.

Shown by Mr. STUART Low. He said that he had brought forward more cases as they showed a minimum of deformity and a maximum of good results which were not always obtainable in instance of old-standing frontal sinus disease, especially where marked polypoid changes of long duration existed. During the after treatment he objected to the usual method of fixing the dressing by means of bandaging the head, and said that he had found a protection shield, which he exhibited, very useful. It was used with the same object as the aural shield that he applied after mastoid operations. This protection shield prevented pressure on the wounded and contused parts and encouraged drainage and healing by first intention, which were of the greatest value in diminishing scar and deformity. There was an additional advantage gained in the employment of this shield, because the elastic pressure assisted passive serous congestion, and in the manner of a Beir's band determined a large supply of blood serum to the part and so greatly aided primary union. This probably accounted for the average number of days that these patients were in hospital being only five. In all these cases the disease was of long standing, varying from three to twelve years, and seemed in three of them to originate in influenza.

The symptoms were periodically very greatly aggravated, and on such times the chronic supra-orbital pain became unbearable. One of the cases operated on a month ago afforded an example of an unusual procedure. Through a skin incision of not more than one inch and a quarter the frontal sinus cavity on the same side

was cleared of mucous polypi. A partition between the two sinuses was then broken down, and the opposite frontal sinus was similarly cleared, being found packed with mucous polypi. Mr. Stuart-Low pointed out how the two sides had been radically cured. Drainage was accomplished from both sinuses down into the nose through one tube. This patient had been subject to epileptic fits, and had one while in hospital, but since the operation on the frontal sinus she had had no attack. Frontal sinus disease might be a causal factor in epilepsy. This had not been suspected hitherto, so far as he knew, and it would be interesting and instructive to look out for corroborative evidence.

Dr. DONELAN said an interesting point was the cessation of the epileptic attacks. He had a young lad who suffered from epileptic attacks two years ago. Polypi were removed from his middle meatus, and the attacks had not recurred since. He had looked up some of the literature, and the only reference he could find to epilepsy being due to anything of the kind was Fétré's article in *Twentieth Century Practice* referring to a case of Lasaulle's, in which "foreign bodies" in the frontal sinus had caused such seizures.

The PRESIDENT said he thought the cosmetic result in all the cases was very good.

Dr. PERMEWAN said that in one of the cases there was a good deal of pus inside the nose. The external results seemed perfect.

Mr. STUART-LOW, in reply, said the case in which Dr. Permewan said there was still a drop of pus was operated upon as long ago as August last. It was a very bad case and had been under treatment ten years. The pus now came from the posterior ethmoid cells, and, if this continued, a Killian's operation would become necessary. Her frontal sinus was found to be packed full of polypi, and it was impossible to cure such a case by attacking the ethmoid region alone; this would be futile. One must operate on the frontal sinus. Killian's operation had not yet been done on any of the patients.

FOREIGN BODY REMOVED FROM THE LEFT BRONCHUS OF A MALE, AGED NINETEEN.

Shown by Dr. D. R. PATERSON. This was a broken shell of a Spanish nut which a young sailor aspirated into his air-passages. There was a severe suffocative attack, which was relieved by the displacement of the foreign body downwards. When seen twelve hours later there was much wheezing but no physical signs to indicate its position. He was put under chloroform, which he took badly, there being much cough and cyanosis. Cocaine was applied to the air-passages and a Killian's tube of 9 mm. diameter introduced. The right bronchus was explored and found empty. In searching the left bronchus something was found blocking the entrance, but its relations were difficult to make out owing to

insufficient illumination from a worn-out lamp. The examination was suspended, and on the following day, with a new lamp, patient was again put under chloroform, which this time he took quietly. The tube was at once passed down to the left bronchus, when it was seen that the nutshell lay inside the bronchus with a sharp, hook-like process over the bifurcation. With Killian's long forceps it was readily seized and drawn out. The nutshell was red in colour, which made it difficult to distinguish its relations clearly from the surrounding injected mucous membrane. A good light facilitated this and extraction was easy.

MAN, AGED SEVENTY-FIVE, SHOWN AT JUNE AND NOVEMBER MEETINGS, 1906, WITH INOPERABLE CANCER OF THE FAUCES, THE PHARYNX, THE TONGUE, AND THE CERVICAL GLANDS, TREATED BY A BACTERIAL VACCINE OF *M. neoformans*.

Dr. SCANES SPICER brought this case again for the inspection of the Society. The treatment had been continued as before. The faucial growth was smaller, and at some portions of margins looked like cicatrising. The cervical glands were very large, matted, and dense again. General condition as before. In the last report, vol. xiv, p. 9, reply: for "eighteen" months read "eight" months.

MAN, WITH CANCER OF LARYNX AND PHARYNX, PREVIOUSLY SHOWN NOVEMBER AND DECEMBER MEETINGS, 1906, AND JANUARY, 1907, UNDER SAME TREATMENT.

Dr. SCANES SPICER again brought this case for inspection. It was the case originally brought before the Society by Dr. Watson on November 2, 1906, and which has since been under Dr. Scanes Spicer's observation in St. Mary's Hospital for treatment by a vaccine as above. The injections have been made as before in inoculation department under direction of Sir A. E. Wright and regulated by opsonic index to *M. neoformans*. The local appearances as to amount of swelling vary without recognisable cause. The superficial extension of the ulceration is trifling, if any; no part is now affected which was not described as affected in first report, so that it may fairly be said that the progress of growth, if not arrested, has been retarded to a degree which is unique in cancer of this region, as far as the speaker's observation has gone. The hoarseness and effort in speech varies, but the patient states he swallows well and has less pain, and less often. His weight two months ago was 8 st. 11 $\frac{1}{2}$ lb. To-day it is 8 st. 11 $\frac{3}{4}$ lb. on

same scales in St. Mary's Hospital. Patient states his weight on admission in November was 8 st. 11 lb.

Dr. WATSON WILLIAMS remarked, as Dr. Spicer had taken on the case from him, that, although he could not agree that the progress of the disease had been arrested, he thought its extension had been remarkably delayed. It was four months since he saw the case, and the disease was then rapidly progressing. It had certainly progressed since then, but more slowly than he would have anticipated.

MICROSCOPIC SPECIMEN OF A LIPOMA OF THE TRACHEA.

Shown by Dr. J. MIDDLEMASS HUNT. The patient, a man, aged sixty-eight, came under my care on November 22 of last year. He was suffering from severe dyspnoea, which had been gradually increasing for over two years. On laryngoscopic examination the larynx was found to be normal, but the lumen of the trachea appeared almost completely blocked by a smooth, rounded, pale-pink, solid-looking growth, which evidently sprang from the posterior wall of the trachea. The top of the growth was on a level with the lower border of the cricoid. I diagnosed the growth as a fibroma.

In view of its size, its firm consistence, and broad attachment, as well as the urgency of the dyspnoea, I decided it would be best dealt with by an external operation. This was successfully carried out by Mr. Paul, one of my surgical colleagues. The growth, which was the size of a hazel-nut, was found to be attached by a broad base to the posterior wall of the trachea, opposite the first three rings. Microscopic examination showed it to be a pure lipoma.

So far as I can find, no case of lipoma of the trachea has ever been recorded. In fact, the only instance in which a pure lipoma has been met with below the larynx is one recorded by Rokitansky in 1851. In that case the growth, which was situated in the left bronchus, was discovered accidentally during a *post-mortem* examination.

MICROSCOPIC SECTION FROM A TUMOUR OF THE NASAL SEPTUM.

(The Case was exhibited at the February meeting.)

Shown by Dr. FURNISS POTTER. The report of the pathologist was to the effect that "the mucosal covering of the septal cartilage is replaced by vascular granulations containing foci of tubercle."

PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

Ordinary Meeting held on Friday, March 8, 1907, at Chandos Street, W.

Mr. MAYO COLLIER, F.R.C.S., Vice-President, in the Chair.

Reported by Dr. Dan McKenzie, Hon. Sec. The following communications were made :

Dr. P. H. ABERCROMBIE showed a *Case of a Male, aged sixty-two, on whom Thryotomy had been performed for Intrinsic Laryngeal Malignant Disease.*

The patient attended the Central London Throat and Ear Hospital on May 11, 1906, complaining of "hoarseness" of about six months' duration and very gradual onset. At first he thought it was an ordinary "cold," and did not pay much attention to it, but when it persisted so long he consulted Dr. Francis, his medical attendant, at the end of April, who advised him to go to hospital at once. Hoarseness was the only symptom complained of. There was no pain and no dyspnoea. During the previous few months he had lost some weight. In the laryngoscopic mirror there were seen general congestion of the laryngeal mucous membrane, and a very slight amount of swelling at the posterior end of the right vocal cord. There was no defective movement of the cords at this time. Examination of the chest proved negative, and his general health appeared to be exceptionally good. There was no history of specific disease, and no glands could be felt. He admitted using tobacco to a large extent, having been in the habit of smoking five or six ounces a week for several years. He also chewed tobacco. He was conscious of mouth-breathing a good deal, having some nasal blocking from septal deflection and thickening, and turbinal hypertrophy. As regards alcohol, he chiefly confined himself to porter, of which he drank about three pints a day.

Previous history.—The patient had "rheumatic fever" when fourteen years of age, which was followed by "scarlet fever." He had had three attacks of "influenza"; the first—which was very severe, took place in 1890, the second four or five years later, and third about five years ago, the last two attacks being much milder

in character. On the whole, his health had been exceedingly good, although he had always been—to use his own expression—a “phlegmy subject.” He volunteered the statement that he was never fond of ordinary salt, and took very little of it. There was nothing of importance in his family history. Iodide of potassium was prescribed, and, while taking it, his throat improved distinctly, and for some considerable time, both as regards the quality of the voice and the laryngoscopic appearances. As a consequence, the patient did not attend hospital for some time, until the voice got worse. When he came again it was noticed that there was a distinct increase in the size of the swelling near the posterior end of the right vocal cord. After cocainising, a piece of this was removed with Dr. Dundas Grant’s forceps, which Dr. Abercrombie prefers to any other form, and examined by Dr. Wyatt Wingrave. His report was that there were no distinct evidences of malignancy. In spite of this, however, the patient was advised to have thyrotomy done, but he refused at this time to agree to operation, especially as his voice had improved since the removal of the piece of tissue from the cord. About a month later recurrence was noticed at the site of the former swelling, and again a piece was removed for microscopical examination. The movements of the right vocal cord on this occasion were quite noticeably impaired. This time Dr. Wingrave pronounced the tissue to be undoubtedly epitheliomatous. Dr. Abercrombie once more strongly impressed upon the patient the necessity for operation, and he agreed to have it done. The exhibitor performed thyrotomy on November 30, 1906, after having inserted a Hahn’s cannula in the trachea. The thyroid cartilage was so calcified that it had to be split with bone forceps. When the interior of the larynx was exposed the growth was found to be much larger than the laryngoscopic appearances had led one to believe. It was growing from the under surface and edge of the posterior third of the right vocal cord. The growth was entirely removed, together with quite half an inch of healthy tissue all round it, including the whole of the right vocal cord and right ventricular band. The wound was thoroughly curetted right down to the cartilage, and the raw surface cauterised with pure anhydrous phenol. The upper part of the wound was closed in the usual way, the Hahn’s cannula removed, and the tracheal wound left open. The patient progressed remarkably well. In a week the tracheal wound had closed, and the only trouble was from a small stitch abscess, which soon yielded to treatment.

Four weeks after the operation, and while he was sitting quietly at home, he sneezed very violently and burst open the tracheal wound, which got infected and discharged for a few weeks. The patient was present for examination, and Dr. Wingrave showed microscopical slides of the laryngeal growth.

Dr. Abercrombie's colleague, Dr. Atkinson, took a very special interest in this patient, and carefully watched him all along, for which Dr. Abercrombie was very much indebted.

Pathological Report on Dr. Abercrombie's Case of Epithelioma of the Larynx.

“Fragment removed for diagnostic purposes on November 24, 1906, exhibited undoubted features of squamous epithelioma, viz. ‘pearls,’ irregular mitosis, with wandering chromatin bodies, and infiltrating lymphocytosis.

“The portion removed by operation on November 30, 1906, was amply confirmative of the diagnosis. There was a distinct margin of sound tissue beyond the lymphocytic zone.

“(Signed) WYATT WINGRAVE.”

Dr. Abercrombie also showed a patient whom he had exhibited about two years ago—a man, aged forty-four—and on whom the same operation for the same disease was performed in March, 1905. In this case the growth occupied the posterior region of the *left* vocal cord. Dr. Abercrombie thought the Fellows might be interested to see the appearances presented by the larynx after a period of nearly two years from the operation. The patient was in perfect health, the voice, of course, being still hoarse.

Mr. J. BARK congratulated Dr. Abercrombie on his two successful cases of thyrotomy. He believed that the chance of recurrence was slight after two years. In his later operations he had discarded Hahn's tube, and had used a large, ordinary tracheotomy tube. He rapidly divided the thyroid cartilage by means of strong cutting shears, and inserted into the cricoid a small marine sponge, which effectually stopped any oozing into the trachea during the operation, and thus prevented the respiratory embarrassment and cyanosis, which so often prolong the operation and worry the operator.

Mr. H. BARWELL endorsed Mr. Bark's remarks on the great advantage of a small piece of sponge over Hahn's tampon-cannula. He had used this method on several occasions, having learnt it from Mr. Marmaduke Sheild. A piece of silk should be firmly sewn into the sponge.

Dr. PATRICK DEMPSEY congratulated Dr. Abercrombie on his perfect results. Were it not for the fact that he was previously told he should never have guessed that so radical a procedure had been carried out. He quite agreed with the previous speaker that Hahn's cannula was quite unnecessary, and in his own cases he used an ordinary sponge packed into the trachea above the tracheotomy tube. Dr. Abercrombie mentioned that he had left the trachea open after operation. Did that mean that he had inserted an ordinary tracheotomy tube? In one of his recent cases he found it very difficult to close the tracheal wound as the result of the retention of a tube for twenty-four hours. He advised the closing of the entire wound at the time of operation in simple cases of thyrotomy.

Mr. MAYO COLLIER had been struck with the confusion which often arose for a multiplicity of instruments. He thought surgeons should rely upon a piece of gauze and catch-forceps for the stopping of haemorrhage in any operation.

Dr. ABERCROMBIE, in reply, said he had always found Hahn's cannula answer the purpose perfectly.

Dr. ABERCROMBIE showed a *Case of "Tuberculoid" Disease of the Left Tonsil.*

Mrs. B——, aged sixty-seven. This patient attended the Central London Throat and Ear Hospital on February 28, 1907, by the advice of her medical attendant, Dr. James Jackson. She complained of "sore throat" confined to the left side, of about two months' duration and gradual onset. She knew of no definite cause for it, but fancied that the great strain from coughing (as a result of bronchitis, to which she was very subject) might have had something to do with it.

There was considerable painful and tender enlargement of the glands about the angle of the left lower jaw, and on looking into the mouth the left tonsil was seen to be enlarged and covered with a whitish exudation, while at its upper border, and extending on to the palate, was a slightly nodular ulcerated area. The palate above and to the inner side of the left tonsil was red and swollen. In the laryngoscopic mirror the epiglottis was seen to be thickened and congested. There was oedematous swelling of the left arytenoid and the left ventricular band, and the larynx generally was congested. The voice was not much interfered with, but there was a slight degree of stridor. For the last two

weeks there had been some pain on swallowing and some slight dysphagia. She also for over a month had complained of neuralgic pains shooting up the left side of the head.

Previous history.—She considered herself a very strong woman. She was subject to “bronchial catarrh” in winter, and had “rheumatism and neuralgia” two years ago in her left arm. Twenty years ago she had an abscess in the right arm-pit, which she was told was due to a “cold in the gland.”

She had five children living, and they all “suffered from their chest” (asthma and bronchitis). Her husband, aged fifty-two, died seventeen years ago from “bronchitis and asthma.” His brother and sister both died of “consumption.” The patient’s father, aged forty-eight, also died of “consumption” aggravated by alcohol. Her mother lived to seventy-eight, and died of “decay of nature.” She had what was apparently a goitre. One of the patient’s brothers died of “cancer of the stomach.” Another brother died in an asylum from “general paralysis,” and one sister died from “rheumatic gout.”

The patient said that she had not recently lost flesh, and her daughter thought that, on the contrary, she was getting stouter. Examination of the chest proved negative. There was very little cough, and what expectoration there was appeared to be bronchial. She had no night sweats. From the appearances as presented at her first visit to hospital it was thought that her case was either one of tertiary syphilis or malignant disease. Twenty grain doses of iodide of potassium thrice daily were prescribed, but this, in her opinion, made the throat worse, and was consequently stopped, and an iron tonic substituted. After cocaineising, Dr. Abercrombie removed a piece of tissue from the upper border of the left tonsil, and had it examined by Dr. Wyatt Wingrave, who reported that it presented the characters of a tuberculoid affection. There were no signs of malignancy nor of specific disease in his opinion. The glandular swelling might, Dr. Abercrombie thought, be septic in character. The patient was presented for examination, and Dr. Abercrombie asked for opinions, especially with regard to treatment.

Pathological Report on Dr. Abercrombie’s Case of Tonsil Disease.

“The tissue was disorganised tonsil in which the lymphoid nodules had lost their symmetrical grouping and the lymph pulp was partially replaced by fibro-vascular elements. There was considerable endothelial infiltration with ‘giant cells,’ but no evidence of caseation, the tendency being to sclerosis rather than

examination of this tissue, which was exhibited here in January, showed columns of epithelial cells, and was pronounced by Dr. Wingrave as probably malignant. On January 28 the speaker operated again and performed a hemi-laryngectomy as, in spite of the extra risk, he hesitated to condemn so young a man to total extirpation of his larynx. He found that the growth had extended far into the neck and extensively infiltrated the sterno-hyoid and sterno-thyroid muscles, and the difficulties of the operation were increased by the scars of the former operations. The patient bore the operation fairly well, and the temperature was normal till the fifth day, when it rose suddenly, and death occurred on the seventh day. No *post-mortem* examination was allowed, but pneumonia was doubtless the cause of death. The macroscopic and microscopic specimens had been brought; the latter showed long columns of epithelial cells with a central core of connective tissue, resembling a papillomatous growth, but that it had grown into and infiltrated other structures.

Mr. MAYO COLLIER said that at last the diagnosis in this doubtful case had been finally settled. He himself had been of opinion that the case was one of perichondritis with abscess, which would be relieved by free incision. To some extent he had been correct; there was perichondritis. But he had to admit that the credit of making the correct diagnosis in this difficult case lay with Dr. Robert Woods, the President of the Association.

PROCEEDINGS OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thirtieth Ordinary Meeting, held at No. 11, Chandos Street, Cavendish Square, W., on Saturday, March 9, 1907, at 10 a.m.

The President, A. E. CUMBERBATCH, F.R.C.S., in the Chair.

The following communications were made :

A CASE OF RADICAL MASTOID OPERATION IN WHICH THE OSSICLES WERE LEFT UNDISTURBED.

BY CHICHELE NOURSE.

The patient, aged thirty, had old-standing middle-ear disease on the right side with a perforation in the postero-superior

quadrant, from which a granulation was removed in September last. The discharge was scanty. Mastoid pain of increasing severity was the reason for operation.

The antrum was small and contained pus under pressure and *débris*. The disease was confined to that cavity, the aditus, and the posterior part of the attic. The operation was completed in the usual way, but the ossicles and the remainder of the tympanic membrane were left undisturbed. No packing was used. The wound was not grafted. Healing was complete in between five and six weeks.

Mr. A. CHEATLE said the preservation of the ossicles in such a case was not a new operation at all. He could not give the references at the moment, but cases had been reported from America in which the ossicles had been conserved in what might be called the incomplete complete operation. He believed the operation could be used more frequently than hitherto, especially where there was no caries of the ossicles.

Dr. DUNDAS GRANT said that at one time he showed before the Society a case illustrating that mode of operating. The result was satisfactory, but members could not convince themselves as to whether any advantage accrued to the patient from the retention of the ossicles. The hearing power was very good, but it was difficult to say whether it was better than it would have been without the ossicles, which were necessarily very hampered in their movements. No doubt the retention of a portion of the tympanic membrane was a protection to the interior of the tympanum; but there was the disadvantage that it acted as a screen, behind which caseous and other undesirable products could accumulate. In that way it might be a source of annoyance. When the mastoid had not been completely removed there was always some doubt as to whether the whole disease had been got away. It was for the future to decide whether there was any advantage over the radical mastoid operation as understood by otologists. The result in Mr. Nourse's case seemed to have been extremely satisfactory.

Dr. JOBSON HORNE said Mr. Cheatle remarked that the operation had a future; he (Dr. Horne) understood it had a past, having been performed some thirty years ago. For the sake of historical accuracy, if for no other reason, he suggested that the literature of the subject should be looked up, and a note inserted in the *Transactions*.

Dr. W. PERMEWAN asked what class of case the operation should be reserved for. It was advisable to distinguish between those cases in which it was intended to remove the ossicles, and those in which it was not. He thought there was a small class of cases in which the operation was justifiable, but he was inclined to the view that in the cases where it seemed good to leave the ossicles there was no need to have operated at all.

Dr. URBAN PRITCHARD said he did not think there were a very large number of cases suitable for that operation; but there must be some. Those suitable would be cases where there was not a large amount of disease behind, so that one would not be locking up a cavity which was not altogether unsuspicious. But, supposing the operation were done, leaving the ossicles, and trouble subsequently arose, nothing was easier than to complete the operation afterwards by removing the ossicles and the membrane.

Mr. YEARSLEY said the most surprising thing to him about the case was that the patient should have had old-standing middle-ear trouble, with a perforation in the postero-superior quadrant and attic disease (as stated in the programme), without there being any caries of the ossicles. In such old-standing cases, where there was disease in the attic and the antrum, one was almost certain to find the ossicles diseased.

Dr. LOGAN TURNER thought the case should come up for discussion at the next meeting as one of chronic middle-ear disease treated other than by the complete radical mastoid operation. There would then be time for the literature of the subject having been looked up, as suggested by Dr. Jobson Horne.

Dr. W. MILLIGAN asked what preliminary treatment had been used prior to operation. He had never regarded the procedure adopted in the present case as a new operation. He had read of a precisely similar operation in American literature many years ago. The operation, he thought, must have extreme limitations; it might succeed in an occasional case, where there was limited disease in the neighbourhood of the antrum. When such cases were recorded it was imperative that the Society should be put in possession of the facts as to what preliminary treatment had been adopted.

The PRESIDENT said that one of the difficulties likely to arise in such a case actually occurred in his experience. This was in a case of chronic suppuration with a small mastoid sinus. As the greater portion of the membrane was intact, he thought he would do a limited operation. It failed because, the deeper part of the outer

wall of the aditus being left intact, granulations sprang up and prevented the free escape of discharge posteriorly. In the end he had to do a complete Stacke, and the patient did well. One of the troubles in these cases would appear to be the liability of the part of the aditus not laid open to be obstructed by granulations.

FURTHER REMARKS UPON A CASE OF SQUAMOUS EPITHELIOMA ORIGINALLY
COMMUNICATED TO THE SOCIETY IN FEBRUARY, 1906.

BY W. MILLIGAN.

At a meeting of this Society, held upon February 5, 1906, I described a case of malignant growth originating in the skin over the left mastoid process in a girl, aged nineteen, and showed the specimen, at the same time showing a microscopic slide, and also a photograph of the patient prior to operation. In July, 1906, the patient presented herself again for examination, when it was found that healing had taken place with the exception of a small area about the size of the end of an ordinary lead pencil, in the centre of the scar tissue. No enlarged glands could be detected. The patient was again put under chloroform, and the ulcerated area thoroughly scraped with a sharp spoon. The patient was subsequently sent to the Light Department at the Manchester Skin Hospital and treated by means of X-rays. After three months' treatment complete healing has taken place, and at the present time the scar appears perfectly healthy. Her general condition has also much improved, and she has put on over a stone in weight. There is still slight drooping of the angle of the mouth upon the left side.

The PRESIDENT thought Dr. Milligan was to be congratulated on the success of his case, and on having had the courage to operate after a distinguished opinion had been given that it was inoperable. It would be a great encouragement to members to attempt similar cases in the future. He asked whether the growth involved the bony structures beneath.

Dr. PERMEWAN understood from Dr. Milligan that there was not much haemorrhage, and he supposed it did not occur to him to tie the external carotid or any other vessel.

Dr. MILLIGAN, in reply, said he did not think the growth involved the bone, but in order to make assurance doubly sure he had removed the apex of the mastoid process. He had intended to tie the external carotid, and had made an incision to do so, but as there was very little haemorrhage he had not found it necessary.

REMARKS UPON A CASE OF ATTEMPTED SUICIDE FOLLOWING A MASTOID OPERATION FOR CHRONIC MIDDLE-EAR DISEASE, AND REMARKS UPON A CASE OF SUICIDE FOLLOWING ACUTE BEZOLD'S MASTOIDITIS.

Communicated by W. MILLIGAN.

Dr. PRITCHARD said he doubted very much whether the ear trouble in those cases had anything to do with the insanity. There must be a certain proportion of ear cases with a tendency to insanity. If ear disease produced that mental condition otologists ought to see a good deal more of it. He had only seen one such case, and in that the patient tried to cut his throat with a remarkably blunt broken penknife, and, needless to say, he did not succeed. There was mastoid disease, but the patient died of tubercular meningitis.

Mr. E. B. WAGGETT said he had gained an impression that people who had had complete mastoid operations sometimes became extremely miserable—he scarcely liked to say neurasthenic. He had now three young women under his care upon whom complete mastoid operations had been performed, and, although as aural cases they were very satisfactory, they were constantly worrying about their general condition. The most miserable man he had ever seen lived nine years after removal of part of his cochlea and a cerebellar abscess. It was well known that the removal of organs had a depressing effect on the mind and on the whole economy, and it would be useful if evidence were collected on the subject whether the complete mastoid operation, with removal of the musculature, the ossicles, etc., had a more profound effect on the general condition than a minor operation.

Dr. EDWARD LAW said the meeting had just heard of three cases of suicide in connection with suppurative ear disease. He had met with one, and this patient also tried to commit suicide in the same way—namely, by cutting his throat.

Dr. JOBSON HORNE said Mr. Waggett had raised the question as to whether the mastoid operation was a cause of insanity. But another point of view was whether that operation might not be the means of preventing what would otherwise become insanity. He could not call to mind any work on the subject, but it was a point which could be worked out better in asylum practice.

Mr. CHEATLE said that one important point was the family history of such patients; he believed everything hung upon that in such cases. He had mentioned at meetings of the Society two

cases of malignant disease of the ear which died of acute mania, and he had had another such case.

Dr. DUNDAS GRANT agreed with Dr. Jobson Horne that the frequency of ear disease in asylums might be looked into more exactly. He was sure it was of frequent occurrence in those institutions, and he thought statistics ought to be easily procurable, because the inmates were under surveillance, and could be easily reached. He suggested that Mr. Waggett should revise the terms of his reference to the subject, for there was liability to misinterpretation. If the radical operation caused profound depression in some cases they were so few, he thought, that he did not feel warranted in endorsing Mr. Waggett's statement.

Mr. F. H. WESTMACOTT said he thought the cases under discussion might be classed with those in general surgery in which insanity supervened after an operation. Recently he had known that unfortunate occurrence in two cases: in one case a lady had had her breast removed, and in another an elderly gentleman had had one testicle removed. In both nearly twelve weeks elapsed between the operation and the onset of acute insanity. He thought it would be found that there was a toxæmia produced, possibly by the disease—and, perhaps, most often by malignant disease—producing a rapidly-ascending nerve-degeneration, and it was not until a certain point had been reached that symptoms of insanity became manifest. He regarded Dr. Milligan's as that class of case, and it was perhaps a coincidence.

Mr. W. H. BOWEN considered the subject was outside the province of the Society.

Dr. WATSON WILLIAMS said he regarded the present discussion as of considerable importance. Having heard the experience of members of catastrophes which had occurred in association with interference in ear disease, would it not be well if some sort of collective investigation could be made, so that the subject should not be left in its present unsatisfactory condition? From the cases brought to their notice there seemed enough to suggest an increased liability to mental aberration in those who suffered from gross ear lesions. If that were so, it was easy to conceive that an operation in, or near, the implicated area might be the last straw, which would send over the border line a case tottering on the verge of insanity. He urged that, having gone so far in discussing the subject, it would be a great advantage if the Society could, in some way, make a collective investigation, so as to have some statistics to go upon. It would be a great misfortune if the Otological Society acquiesced

in considering that such a subject did not come within its proper field of inquiry.

Dr. PERMEWAN thought, with Dr. Pritchard, that the mere fact that Dr. Milligan had only met with two such cases was a complete answer to the suggestion that there was a tendency to insanity in such cases in which the mastoid operation was done. He, Dr. Permewan, had not seen the depression such as Mr. Waggett described after the operation. The family and personal history of those cases was all-important. Was it not possible that either or both of them might have had influenza? In the absence of details as to the personal and family history, he did not think it was possible to speak on the general question.

Mr. YEARSLEY remarked that Dr. Milligan said both the patients suffered from tinnitus before the operation. He would like to hear whether the operation had any results as regards that symptom. It was probably the experience of every otologist that in people with a hereditary tendency to insanity quite a small amount of tinnitus, if neglected, was sufficient to establish definite auditory hallucinations. If the tinnitus remained in the cases, did it have any bearing on the insanity?

Dr. JOBSON HORNE seconded the suggestion of Dr. Watson Williams, that the Council consider the advisability of investigating the matter. The rules permitted the appointment of committees to conduct special investigations.

Mr. MILLIGAN, in reply, expressed his pleasure that the cases had aroused such an interesting discussion. He did not agree with Mr. Bowen, as he thought the subject matter came well within the province of otology, and the importance of the subject was very considerable. He agreed with Dr. Permewan's and Dr. Pritchard's remarks. He did not believe there was any particular tendency to mental aberration after ear operations. If there were any real connection, otologists would see more such cases than they evidently did. He entirely disagreed with Mr. Waggett's remarks as to the great depression following mastoid operations, his experience being rather the reverse—that after those operations the general condition of the patient was so much improved that, as a rule, the mental condition became much better. One of the marked results of removing septic foci was the great improvement in general health. In answer to Mr. Cheatle, there was nothing particular to say about the family history. Dr. Dundas Grant referred to a very important point, and he referred Dr. Grant to a paper in the *Medical Record* of August 25, 1906, on

"Functional Derangement of the Ears and Upper Air-Tract in the Insane." He thought it most important that the class of case under discussion should not be confused with post-operative mania, which category Dr. Westmacott's cases seemed to come under. He thought Dr. Watson Williams' suggestion, that there should be a collective investigation on the subject, was important, because it would put members into possession of definite facts, and the opposite impression could be refuted if necessary. With regard to the tinnitus, in the first case the tinnitus entirely disappeared after operation, but not in the second case, the patient always complaining of it, though he believed it was not so bad after the operation as formerly. He particularly asked about influenza, because so many of these cases were post-influenzal, and the depression after influenza was often very great. His own impression was that there was no direct connection between the ear trouble and the insanity, but he thought it well to bring the cases forward.

Mr. WAGGETT reminded members that he mentioned four cases of depression out of a very large number of mastoid operations, and the point about them was that, although the cases were quite successful as ear cases, the patients still had depression. The question was whether the removal of the organ, as such, had anything to do with an abnormal condition of the mind.

NOTES OF A CASE OF CEREBELLAR ABSCESS SECONDARY TO CHRONIC SEPTIC OTITIS MEDIA, IN WHICH SUDDEN DEATH OCCURRED PRIOR TO OPERATION.

BY W. MILLIGAN.

Cases of sudden death as the result of the presence of abscess of the cerebellum are by no means infrequent, and most modern text-books upon diseases of the ear draw attention to the fact. The explanations usually offered are either pressure upon the respiratory centre, or sudden oedema of the brain-substance in the immediate vicinity of the vital centres. In the particular case about to be narrated, the patient, a young woman, aged twenty-eight, had suffered for years from chronic suppurative otitis media upon the left side. The history given was that she had had on many occasions antiseptic treatment for the affected ear, but that she had never systematically followed up the particular line of treatment advocated. Owing to sudden and severe pain at the back of the head, accompanied by vertigo and sickness, she applied

for admission to hospital. She was at once admitted and put to bed. Examination of the affected ear, carried out by Dr. D. L. Sewell, showed a large perforation of the left membrana tympani, foetid discharge, granulation tissue, and a carious pars promontoria. There was severe left-sided nerve-deafness, but no involvement of the left facial nerve. Her pulse was 58, temperature 97·4° F., and respiration 16. There was no paresis, or paralysis of any muscle, or group of muscles, no optic neuritis, and no nystagmus. Owing to absence from work I did not myself see the patient until thirty-six hours after her admission to hospital. Preparation was being made for operation when the patient suddenly collapsed, and for all practical purposes appeared dead. Respiration entirely ceased, but the pulse continued to beat for twelve minutes, when it also suddenly stopped. The *post-mortem* examination showed an abscess in the left cerebellar lobe. There was considerable oedema of the brain, and a marked increase in the amount of cerebro-spinal fluid.

I have, on a previous occasion, drawn attention to the advisability of withdrawing some cerebro-spinal fluid preparatory to operating upon cerebellar abscesses, in order to relieve pressure, and, had circumstances admitted, it was my intention to do so in this case. Collapse was so sudden, however, that there was no time in which to get things ready or to secure assistance.

Mr. E. C. WEST, referring to the question of lumbar puncture, and the relief of the pressure of the cerebro-spinal fluid, said one knew how superficial the outer limit of a cerebellar abscess often was; there was, therefore, a risk of puncture leading to the bursting of the abscess, and the consequent flooding of the subarachnoid space with pus, if the operation were not proceeded with immediately.

Dr. PERMEWAN asked whether the cause of death in these cases was not so much general pressure as pressure of the abscess on some particular vital point, or the extension of the inflammatory process to some vital region. A cerebellar abscess might have been going on for years, possibly without any symptoms, therefore he did not think it could be a general increase of pressure.

Dr. LOGAN TURNER said he had had a similar case to Dr. Milligan's, a case of sudden death in connection with cerebellar abscess. The *post-mortem* examination showed distinct pressure upon the medulla; there was a depression which could have been produced only by the abscess. Mr. Charles Ballance mentioned,

in his new work on the surgery of the brain, a point in connection with lumbar puncture; he had on more than one occasion performed lumbar puncture prior to operating on the cerebellum, with the view of relieving the pressure.

Mr. H. J. MARRIAGE said, with regard to cases of cerebellar abscess dying during the administration of the anaesthetic or before starting the operation, he had an interesting case six months ago. He was called to see a patient, a girl, aged thirteen, with acute mastoid disease of three weeks' duration, and signs of abscess, which could not be localised in any way. The patient, who was extremely drowsy, had a slow pulse, subnormal temperature, optic neuritis, and vomiting, but no definite localising symptoms. He prepared to open the mastoid, to try to find indications as to the part affected. But a minute after starting the anaesthetic the patient stopped breathing, though the pulse was quite good. He, therefore, felt sure it must be a cerebellar abscess. Artificial respiration was carried out for twenty-five minutes, during which time he trephined over the cerebellum and found an abscess. Immediately that was evacuated the patient began to breathe again, and he put her back to bed without touching the mastoid. A week later he cleared out the mastoid, and found a septic track, which ran directly into the abscess-cavity, passing internally to the lateral sinus. The patient did well for a week, and then suddenly died. At the autopsy it was found that she had not only a cerebellar abscess but also a temporo-sphenoidal abscess, which had given no indications, and had probably caused death. The case showed it was worth while to try to find the abscess, even when the breathing had stopped.

Mr. SYDNEY SCOTT knew of a case some years ago of cerebellar abscess in which breathing suddenly stopped when the patient was about to be operated upon. The heart continued to beat. Artificial respiration was kept up for three hours, and then abandoned, though the heart was still beating. *Post-mortem* a large cerebellar abscess was found compressing the medulla towards the opposite side. There was no temporo-sphenoidal abscess. Had the operator exposed the cerebellum, as Mr. Marriage had done, it is probable that life would have been saved.

Dr. MILLIGAN, in reply, said he did not think lumbar puncture would be a danger in the direction of causing an abscess to burst owing to the sudden relief of pressure. Some of these cerebellar abscesses were not very superficial, although others were. One might justifiably take the risk of doing a lumbar puncture in the

circumstances. With regard to pressure on the medulla, he had always understood that to be the cause, though it was difficult to make it out. As Dr. Permewan suggested, there might be something else in addition. He had not seen any resulting indentation of the medulla, but was much impressed by Dr. Turner's remark. With regard to the remarks made by Mr. Marriage, he thought one should proceed with the operation, otherwise the patient would die, whereas, if the operation were carried through rapidly, possibly the patient would recover. He believed that Sir William MacEwen, in his book, refers to a case in which artificial respiration was carried on for fourteen hours.

(To be continued.)

Abstracts.

FAUCES.

Logan, J. A. (Kansas City).—*Endothelioma of the Throat.* “Boston Med. and Surg. Journ.,” January 10, 1907.

The growth affected one tonsil and appeared to be ameliorating under X-rays. The nature of the growth was proved by microscopic examination. *Macleod Yearsley.*

PHARYNX.

Holmes, E. M. (Boston).—*Middle-ear Suppuration as an Etiological Factor in Retropharyngeal Abscess.* “Boston Med. and Surg. Journ.,” January 10, 1907.

The author considers retropharyngeal abscess from middle-ear disease is rare. He advises a free incision in the pharyngeal wall, the index finger acting as a guide in curetting. *Macleod Yearsley.*

NOSE AND ACCESSORY SINUSES.

Kubo, I. (Fukuoka, Japan).—*Contribution to the Histology of the Inferior Turbinate.* “Archiv für Laryngol.,” vol. xix, Part I.

The microscopical specimens on which this paper is based were prepared from the body of a man aged about forty-five, after a species of “natural” injection of the nasal blood-vessels. A few hours after death the body was suspended in the inverted position, until the face had become deeply cyanosed. The internal jugular veins were then ligatured, and the head injected by way of the carotids with a 10 per cent. solution of formalin. Lastly, the entire head was placed for several days in 10 per cent. formalin, frequently changed. A piece of the middle portion of the left inferior turbinate was employed for the examination.

The specimens show externally the ciliated, cylindrical-celled epithelium, bounded internally by the membrana limitans. This is followed by the so-called “adenoid” or subepithelial layer. More internally is the

glandular layer, and then the true cavernous tissue, which is much better developed at the free margin of the turbinate than at its point of attachment.

Three capillary systems can be distinguished, namely, the sub-epithelial system, the glandular system, and the periosteal system. The first of these is bounded externally by the *membrana limitans*, but it appears that under conditions of high venous pressure some capillaries pass through the "canalici perforantes membranæ basilaris," and come into actual contact with the epithelial cells.

In regard to the amount of muscle and elastic tissue in their walls the cavernous channels are intermediate between the arteries and the veins. In the stroma between the vessels are found a few muscle bundles, which appear to act as vaso-dilators.

Elastic fibres are present in all the layers deep to the limiting membrane. In the outer layer of the periosteum they form a definite sheet of varying thickness. They assist in the support of the cavernous channels. In the glandular layer they are very few in number, and are in relation to the blood-vessels alone. In the subepithelial or "adenoid" layer they appear to be very variable. In some cases they form a rich network, but are not disposed in a continuous sheet. In cases of lobular hypertrophy both elastic fibres and gland ducts are found in considerable numbers in the depressions, while the prominences are almost free from them, and seem to be due mainly to hypertrophy of the "adenoid layer."

Thomas Guthrie.

Kubo, I (Fukuoka, Japan).—*On the Question of the Normal Condition of the Human Inferior Turbinate.* "Archiv für Laryngol., vol. xix, Part II.

In order to determine the normal condition of the inferior turbinates, the author, as a sequel to his "Beiträge zur Histologie der unteren Nasenmuscheln," investigated the inferior turbinates of new-born infants, in whom alone, he considers, can the possibility of the pre-existence of inflammatory diseases be excluded. Microscopic sections in these cases showed the following more important points of distinction from similar preparations of adult turbinates:

(1) The cylindrical epithelium is not yet fully developed, the cells being more elongated in some spots than in others, with the result that the free surface is undulating.

(2) The basement membrane is but little developed. As time goes on it gradually increases in distinctness, and especially so after inflammations. Excessive thickening is, therefore, to be regarded as a sign of past inflammation.

(3) The glands are very numerous. They are at first placed more superficially than in the adult, and only later extend deeply. Irregularity of distribution points to previous inflammation.

(4) The so-called "sub-epithelial" or "adenoid" layer of the adult is almost totally unrepresented, and the lymph-follicles do not appear until the age of about two and a half years. This layer varies greatly in the adult. Marked development of it always indicates a condition of hypertrophy, and is usually associated with a thick basement membrane.

(5) The bone is very irregular and displays many branching processes. Signs of active growth and absorption are everywhere present.

(6) The cavernous tissue is simpler than in the adult, but both it and the elastic fibres are already well formed at birth.

Thomas Guthrie.

Sprenger (Stettin).—*A Case of Mucous Cyst of the Frontal Sinus.*
“Archiv für Laryngol.,” vol. xix, part I, 1906.

Dr. Sprenger relates the case of a man whose illness began with headache of increasing severity at first in the right frontal, but later in the right temporal region. The discovery of an empyema of the right antrum led to the performance of the so-called radical operation, which, although at first apparently successful, was followed by a recurrence of the pain, first in the left temporal region and then on the right side, especially in the eye and at the root of the nose. The appearance of a firm, fluctuating swelling about the size of half a cherry in the region of the right eyebrow, together with tenderness of the anterior and inferior walls of the right frontal sinus, induced the author to operate. The first incision laid bare a small cyst containing about a drachm of greenish-yellow serous fluid. Examination of the posterior wall of this cyst disclosed a circular defect in the bone about the size of a small cherry. This hole was closed by a firm membrane, by means of which the interior of the cyst was separated from that of the frontal sinus. The latter, when opened, was found to be empty, but increased in all its diameters, and its lining membrane was markedly atrophic and adherent to the bone. The upper wall presented an exactly similar defect to that of the anterior, so that the dura mater was laid bare. The ostium of the sinus could not be found. The author lays stress on the following points: (1) the diagnosis was much obscured by the co-existence of an empyema of the antrum; (2) the pain repeatedly altered its situation, and was even localised for three weeks in the *left* temporal region (this was probably due to pressure on the very thin septum which divided the right frontal sinus from the left); (3) the pain differed from that usually noticed in frontal sinus disease, in that it was severe during the day and absent at night; (4) the situation of the pain at the root of the nose, and radiating thence to the tip of the nose and also to the ear and neck, is regarded as somewhat characteristic; (5) the markedly atrophic condition of the mucosa of the frontal sinus indicated that the cyst was a late result of chronic inflammation.

Some space is devoted to a discussion of the various views as to “mucocoele” of the frontal sinus.

Thomas Guthrie.

Storck, J. A. (New Orleans).—*Gastric Disturbance due to Disease of the Frontal Sinus.* “New Orleans Med. and Surg. Journ.,” February, 1907.

The author reports two cases, one suffering from dyspepsia, the other from nausea, in which the connection between the frontal sinus disease and the gastric disturbance was well established.

Macleod Yearsley.

LARYNX.

Wertheim, E. (Breslau).—*On Contusion of the Larynx.* “Archiv für Laryngol.,” vol. xix, Part I.

The author describes a case in which a man, aged forty-six, while riding a bicycle, collided with a hand-cart and received a blow on the left side of his neck. Examination two hours later showed, externally, no trace of injury. Crepituation was likewise absent, and tenderness present only on deep pressure over a sharply-defined area about $\frac{1}{2}$ cm. to the

left of the pomum Adami. The left vocal cord, on laryngoscopic examination, showed marked redness and swelling, and numerous sub-mucous haemorrhages; while the ventricular band of the same side was only slightly red and swollen, as was also the left arytenoid region. The left vocal cord remained fixed near the mid-line on phonation and respiration. The right vocal cord was also slightly red and swollen. On the following day the swelling had greatly increased, and the left arytenoid region and sinus pyriformis were involved in a large deep-red tumour. Two days later the swelling was much less and the left vocal cord was again movable. Recovery was complete nineteen days after the accident.

The age of the patient in this case was such as to suggest the possibility of a fracture, but against this were the absence of crepitation, abnormal mobility, and subcutaneous emphysema. Although a little fluid blood was seen in the left ventricle of Morgagni, the complete absence of haemoptysis indicated the absence of any considerable tearing of the mucous membrane.

The treatment in such cases should consist of complete rest of the voice, cold fluid diet, ice compresses, and the sucking of ice. Supra-renal preparations alone, or in combination with cocaine or novocain, may be employed to reduce the swelling, but, owing to the nature of the latter, will probably be of small service. Scarification or tracheotomy may be required in rare cases.

Thomas Guthrie.

EAR.

Bryant, W. Sohier.—*The Conservation of Hearing in Operations on the Mastoid.* “Boston Med. and Surg. Journ.,” March 7, 1907.

The amount of residual hearing following mastoid operations depends on (1) the integrity of the sound-perceiving mechanism; (2) the amount of sound-conducting mechanism left by disease; (3) the functional efficacy of this conducting mechanism; (4) the amount of conducting mechanism remaining after operation; (5) the functional efficacy of the conducting mechanism remaining after operation. Bryant discusses the fourth and fifth conditions. He thinks that the ossicles should, if possible, be preserved in position without dislocation, and considers that, in the disposal of the tympanic structures, the following five rules should guide the surgeon: (1) The tympanum should be restored to its normal condition, with nothing taken away, if the malleus is left. (2) The incus should be removed if the malleus is out, because the former acts as a damper to the stapes. (3) The posterior attachments of the membrane should be preserved after loss of malleus and incus, because this part of the membrane can be trained on to the stapes and act as a sound transmitter for it. (4) When malleus and incus are gone, the tympanum should be kept open and the anterior part of the membrane used to shut off the Eustachian tube. (5) The tympanum should be kept open and the major ossicles removed, if the stapes is out, to allow free access of sound waves to the labyrinth. The author further insists upon the shortening of tympanic convalescence as preserving of residual hearing. Four cases are cited, and the paper concludes with the remark that the maximum post-operative hearing is obtained by judicious preservation of the sound-conducting mechanism, and by the most rapid possible convalescence of the middle ear.

Macleod Yearsley.

THE

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

FORTHCOMING CONGRESSES.

THE TÜRK-CZERMAK MEMORIAL FESTIVAL.

In the earlier part of last year we were able to announce that an International Laryngo-Rhinological Congress would be held in Vienna in 1908. It will be remembered that in 1908 fifty years will have passed since the art of laryngoscopy was established in Vienna by Türck and Czermak. The Congress will be held to celebrate this jubilee and to do honour to the memory of the two men who rendered a lasting service to medical science.

We now furnish our readers with further particulars of the work and regulations of the Congress. The Congress will be held from April 21 to 25 under the honorary presidency of Professor von Schroetter; the work will be confined to scientific communications and demonstrations. It is intended to hold, at the same time, an exhibition of instruments and preparations in connection with laryngology. Addresses and papers may be contributed in German, English or French; the maximum amount of time allowed for each communication is twenty minutes. Short *résumés* in one of the three languages mentioned must be forwarded to the Secretary, Professor M. Grossman (IX Garnisongasse, 10, Vienna) not later than December 31, 1907. The subscription to the Congress, 25 kronen (1 sovereign) may be forwarded to the Treasurer of the Congress, Dr. Gottfried Scheff, or to the representatives of the Laryngological Societies. Cards of membership will be issued. As a souvenir of

the Congress it is intended to issue a medal bearing the portraits of Türck and Czermak. Every member of the Congress will be entitled to receive a copy of the "Transactions." The President of the Congress will be Professor O. Chiari.

THE EIGHTH INTERNATIONAL OTOLOGICAL CONGRESS.

On the occasion of the Seventh International Otological Congress being held at Bordeaux under the presidency of Dr. E. J. Moure in 1904, an invitation was received and duly accepted to hold the next congress in Buda Pesth in 1908 under the presidency of Professor J. Böke. It has since been found advisable to change the date for the following reason: at the last International Medical Congress recently held at Lisbon, an invitation from the Hungarian Government and the municipality of Buda Pesth to hold the Sixteenth International Medical Congress in their capital was also duly accepted, and the date of the same fixed for 1909. Through the friendly courtesy of the President of the Sixteenth International Medical Congress it has been made feasible to hold the Otological Congress simultaneously in 1909. The Otological Congress will form a separate section, with the special title of "The Eighth International Otological Congress," and will be afforded all the facilities for transacting the usual business of the Congress.

THE SIXTEENTH INTERNATIONAL MEDICAL CONGRESS.

The preliminary arrangements for the holding of this Congress in Buda Pesth are already in hand. His Majesty the King of Hungary has graciously granted his patronage. The date of the opening is fixed for August 29, and the sessions will be continued until September 4. The first circular, which will contain every necessary information, as well as the rules and regulations, will be ready for circulation in the course of the current year. Meanwhile the Secretary-General of the Congress (Sixteenth International Medical Congress, Buda Pesth, Hungary, VIII, Esterházy-utcza 7) will have much pleasure in giving information to enquirers.

THE GERMAN OTOLOGICAL SOCIETY.

The sixteenth meeting of the German Otological Society will be held at Bremen on May 17 and 18. The following is the programme:—

1. Report of the Sub-committee on "The Best Method of carrying out

Investigations in Schools with regard to Dulness of Hearing," by Professor HARTMANN (Berlin).

2. Discussion on Professor KÜMMEL's Report on "The Bacteriology of Acute Suppurations of the Middle Ear." The following communications on the same question are promised :

- (a) DENKER (Erlangen) : "Bacteriological Investigations in Acute Purulent Median Otitis in the Aural Clinic at Erlangen."
- (b) KOBRACK (Breslau).
- (c) H. NEUMANN (Vienna) : "On the Bacteriology of Acute Middle-ear Suppuration."
- (d) WITTMAACK (Greifswald).

3. SIEBENMANN (Basel) : "On Deafness due to Osteomyelitis."

4. HERZOG (Münich) : "Labyrinthine Suppuration and Hearing Power."

5. ROEPKE (Solingen) : "On Osteomyelitis of the Frontal Bone resulting from Suppuration of the Sphenoidal Sinus and its Intra-cranial Sequelæ."

6. DENNERT (Berlin) : "Acoustico-physiological Investigations concerning the Organ of Hearing."

7. R. PANSE (Dresden) : "What can we Consider as undoubtedly Pathological in Microscopical Preparations of the Internal Ear?"

8. H. FREY (Vienna) : "Contribution to the Anatomy of the Organ of Hearing."

9. REICHEL (Bremen) : "Report on Sixty Frontal Sinus Operations carried out according to Killian's Method."

10. OPPIKOFER (Basel) : "Investigations on the Nose at the time of the Menses, Gestation, and Parturition."

11. H. NEUMANN (Vienna) : "On Suppurative Disease of the Labyrinth."

12. R. BARANY (Vienna) : "Investigations on the Condition of the Vestibular Apparatus in Injuries of the Head and its Practical Significance."

13. R. BARANY (Vienna) : "On the Theory of Nystagmus."

14. WAGENER (Berlin) : "Crystals and Giant-cell Formations in Middle-ear Suppuration."

15. DAHMER (Posen) : "Dry Treatment of Perforative and Exudative Inflammation of the Middle Ear by means of Mounted Swabs."

16. Voss (Königsberg) : "Radiology in Diseases of the Ear."

17. Voss (Königsberg) : "How does Nystagmus arise after Injury of the Labyrinth?"

18. L. SCHÄFER (Berlin) : "On the more recent Investigations in favour of Helmholz's Resonance Hypothesis."

19. BRIEGER (Breslau) : "The Pathology of Otogenous Pyæmia."

20. SZENES (Budapest) : "A Case of Occurrence without Symptoms of Pathological Bone-changes in Secondary Disease of the Peripheral Portions of Bone."

21. DELSAUX (Brussels) : "Concerning Ligature of the Jugular Vein."

22. SIEBENMANN (Basel) : Demonstration of the Labyrinth of Deaf Mutes.

23. ESCHWEILER (Bonn) : Demonstration of the Pathological Histology of the Ear in Deaf Mutes, and of Diseases of the Accessory Cavities.

24. M. WASSERMANN (München) : "The Value of the Röntgen Method for the Diagnosis of Suppuration in the Ethmoid and Frontal Cavities, with Demonstration of Röntgen Photographs."

25. MANASSE (Strassburg) : Demonstration of a Case of Congenital Defect of the Auricle.

26. H. RUDELOFF (Magdeburg) : Demonstration of an Operating Chair.

27. WITTMAACK (Greifswald) : "On Injury to the Hearing from the Effect of Noise."

28. H. NEUMANN (Vienna): Demonstrations.
29. R. HOFFMANN (Dresden): Demonstration on Preparations illustrating the Pathology of Cerebral Abscess.
30. HEGENER (Heidelberg): Demonstrations dealing with the Study of Cerebral Abscess.
31. WINCKLER (Bremen): Röntgen Photographs of the Mastoid Region.

PRESENTATION TO PROFESSOR POLITZER.

ACCORDING to the Imperial laws of the Austrian Government Hofrath Professor Adam Politzer will very shortly have arrived at that age when he is obliged to vacate his Professorship in the University of Vienna, which he has so long and so conspicuously adorned, as also his position as head of the world-renowned Vienna Ear-clinic.

The movement, which a short time ago was set on foot to suitably mark the occasion of his retirement from active duty in the University and in the Ear-clinic of the Allgemeines Krankenhaus, has most unfortunately, and at the Professor's own request, had to be abandoned owing to recent family bereavements.

The opportunity which would otherwise have been afforded of paying tribute to the master's great devotion to medical science and to aural surgery in particular is therefore denied to the large army of aurists and the renowned Professor's old students, who would gladly have journeyed to far-famed Vienna to take part in what would have been a truly pleasing and historical commemoration.

The debt which aural surgery owes to Professor Adam Politzer's indefatigable zeal and splendid talents can never be accurately gauged. Suffice it to say that there is probably not an aural surgeon of any standing in any part of the habitable globe who has not at one time or another come under the Professor's spell or who has not profited by the study of the many lucid practical and scientific papers which for years past have emanated from his gifted pen.

In order that the occasion of the Professor's retirement from active University and hospital work should not pass without some definite memorial, an influential committee of leading otologists from all quarters of the globe has been formed to present the revered Professor with a gold medal bearing his portrait and suitably inscribed.

Replicas of this medal in silver or in bronze will be struck as souvenirs alike of the master and as commemorative of the day of his retirement. We feel confident in expressing the conviction that no aurist will miss the opportunity of acquiring this medal, and we beg to refer our readers to the April issue of this JOURNAL wherein particulars of how it may be obtained are to be found. Applications should be sent as soon as possible and not later than May 15.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

One Hundred and thirteenth Ordinary Meeting, April 5, 1907.

J. B. BALL, M.D., *President, in the Chair.*

HENRY J. DAVIS, M.B., }
W. JOBSON HORNE, M.D., } Hon. Secretaries.

Present—26 members and 1 visitor.

The minutes of the previous meeting were read and confirmed.

The following communications were made :

A CASE OF MALIGNANT ENDO-LARYNGEAL GROWTH IN A MAN, AGED TWENTY-NINE, SHOWN AT THE LAST MEETING (*vide* "PROCEEDINGS," MARCH 8, 1907).

Shown by Dr. STCLAIR THOMSON. A portion of the growth was removed shortly after the Meeting, and found to be carcinoma. Although there was a small gland on one side of the larynx, it was thought that an attempt might be made to operate on this separately and clear away the endo-laryngeal growth by a laryngo-fissure. However, on starting the latter operation, the small gland lying on the crico-thyroid membrane was found to be infiltrated with hard growth, and as the disease had therefore spread through the larynx it was hopeless to think of eradicating it by thyrotomy. A tracheotomy tube was therefore left in, and

the patient allowed to recover from the anaesthetic. When he was offered the alternative of excision of the larynx, he declined it.

The case was, of course, highly interesting from the early age of the patient. A microscopic section was exhibited.

Dr. JOBSON HORNE said he looked at the section, but was unfortunate in not being able to find that part of it which contained the carcinoma. He thought it would be well to refer the section to the Morbid Growths Committee for an opinion.

Mr. BETHAM ROBINSON seconded Dr. Horne's suggestion to refer the section to the Morbid Growths Committee. As some of the sections were cut obliquely, and others did not clearly demonstrate the presence of carcinoma, that would be a wise course.

Dr. STCLAIR THOMSON, in reply, agreed to the suggestion. He had only received the section that afternoon. He had also the section of the gland which he removed from the front of the crico-thyroid membrane.

A CASE OF SO-CALLED PROLAPSE OF THE VENTRICLE OF MORGAGNI, IN A WOMAN, AGED FIFTY, SHOWN AT THE LAST MEETING (*vide* "PROCEEDINGS," MARCH 8, 1907).

Shown by Dr. STCLAIR THOMSON. The growth was removed in one piece, and under the microscope showed oedematous tissue with a very slight fibrous stroma.

The PRESIDENT thought it would be well to refer this case also to the Morbid Growths Committee, as it was a very rare specimen.

Dr. HORNE, referring to Dr. StClair Thomson's remark that, so far as he could recollect, a similar specimen had not previously been shown to the Society, reminded members that some years ago he, Dr. Horne, showed before the Society a microscopic section cut vertically through the soft parts of one side of a larynx, showing the growth *in situ*, which, clinically, would have simulated prolapse, though under the microscope it was seen to be a genuine hyperplasia of normal structure. That section was illustrated in the "Proceedings," vol. v, 1898, p. 98.

A CASE OF APHEMIA.

Shown by Dr. H. J. DAVIS. This was the case of a boy, aged twelve, who, according to his mother's statement, "had never spoken, though he could hum airs in perfect tune."

The boy was unusually intelligent, could draw well (with his left hand), heard and understood everything perfectly, but he could not utter a word.

Though the frænum of the tongue was short, this was not sufficient to account for his inability to protrude the tongue when under examination. The larynx was normal and there were no post-nasal growths.

At the age of three and a half the mother noticed some weakness on the right side (infantile hemiplegia?) but this was indefinite, and the child had made no attempt to speak even before this.

If asked to draw a bird, or a wheelbarrow, or cart, he did so immediately, and when asked to write under the drawing what it represented he did so. When holding the pencil in his right hand he would stare vacantly at the paper, and he could do nothing, not even write his name; but if allowed to hold the pencil with both hands he drew and made words correctly. The condition was not so much one of aphonia as of aphemia.

The movements of the palate were symmetrical but, the exhibitor thought, slightly impaired, and the tongue was not under complete control. He would be glad if members could offer opinions as to suitable treatment. The case, he thought, was a very unusual one.

The PRESIDENT remarked that he noticed the boy could not protrude his tongue.

Dr. J. DONELAN thought the case would benefit by education, as the intelligence was preserved in so marked a degree. The paresis of the speech organs apart from the larynx seemed chiefly from desuetude. Special attention should at first be given to the vowels. He had a very similar case six years ago—an Italian boy, who was sent to a deaf and dumb institution near Rome. He learned from a relative a few months ago that the boy had greatly improved and could speak very well. He was not deaf. In these growing patients, where the intelligence was so well preserved, in cases of right hemiplegia the third right frontal convolution could be trained to take on the functions of the left in a remarkable degree. He suggested that this boy should be sent to some similar institution. The case he referred to was under training for two or three years.

Dr. DUNDAS GRANT said there seemed to be considerable weakness in the muscles of articulation when used for other purposes. The boy could not whistle, nor blow out a light, nor puff out his cheeks, nor protrude his tongue, and, as he also had incomplete action of the palate, there might be some defect in the medulla. When asked to phonate the palate dropped, although it rose reflexly when the tongue was depressed. There was, therefore, much mechanical defect, apart from the cerebral. Education might eventually be successful, but it would be a very slow process. He suggested that the case should be brought before the Neurological Society.

Dr. WATSON WILLIAMS thought there must be a cortical lesion. The mischief was fairly extensive. Yet there was no obvious atrophy in the arm, nor in the tongue, and if it were medullary, with involvement of the nuclei supplying the muscles of those regions, *i.e.*, of the lower neurones, there would be atrophy of the involved muscles. He suggested that the lesion was in and around the neighbourhood of Broca's convolution: then the arm would be affected only on one side. He asked whether there was a clear history of an attack of hemiplegia coming on at the age of three. The mother seemed very indefinite about the onset, and he gathered from her that most of the defects observed dated from birth.

The patient might have had a cortical injury at birth. He agreed with Dr. Donelan's suggestion to send the child to a deaf and dumb institute, for the case was analogous to many of the cases which were successfully treated by oral methods, and the fact that the boy heard better than some of those treated in that way was favourable to such a course. There was much difficulty in getting the constant and patient training required in any other way.

Dr. DE HAVILLAND HALL said the treatment of deaf and dumb cases was a very slow one, and required immense patience and perseverance on the part of both teacher and patient. He had been watching for nearly two years a patient who was being treated so, and who had previously been quite neglected. He was under a German gentleman and could now make himself understood. In the case before them the boy heard well, and was intelligent, and it was a question of educating the muscles. Whether permanent damage had been done, or whether the right side could take over the functional activity, he did not know. It seemed, however, to be a case which should be trained, but the mother should be informed that the treatment was a matter of years.

Mr. C. A. PARKER said he had treated several boys and girls who had cleft-palate speech simply from lack of use of the palate—purely functional cases. When this present patient phonated he at once let all the air come through his nose, and his palate dropped on to the base of his tongue. All such cases which he had seen had been cured by teachers for the correction of stammering, and this patient should do well, unless the atrophy of his tongue had rendered articulation impossible.

Dr. DAVIS, in reply, said the point was this, if the boy could not speak because his tongue was paralysed, no amount of teaching would make the hypoglossal nerve take on its functions again. Though there was supposed to be a history of right hemiplegia, it was very indefinite, and if there had been haemorrhage on the left side of the brain, the right side would have assumed the functions by now. If the boy took a pen in his left hand he was able to write, but if he held it in the other hand he could not think of, or write, the required word. It was not that the tongue was tied by the shortened frenum, but he had paresis of the anterior fibres of the genio-hyoglossus. But it could not be very extensive, because the tongue was fairly developed. The boy was unusually intelligent, and had the musical centres well developed—he could hum a hymn, or "God save the King," perfectly,—and the musical centre was almost in contact with that for speech in Broca's convolution. In reply to Sir Felix Semon, he thought that it was recognised that the musical centres had been located, and were situated behind the speech centre on the left side.

Dr. DUNDAS GRANT said there was a reference to such a centre having been proved by *post-mortem* examination, in a new book on the treatment of diseases of the voice, by Perretière, of Lyons. He did not know the details, but could supply the reference; or he would bring the subject forward for discussion. Dr. Grant considered the bilateral character of the defects difficult to reconcile with the purely cerebral origin suggested by Dr. Watson Williams.

Sir FELIX SEMON said he thought it was impossible, on the strength of a single case in which a certain faculty was absent, to localise the cerebral seat of the latter by one *post-mortem* examination. He would be interested in learning the reference which Dr. Grant had promised.

The PRESIDENT said he agreed with those who believed that the boy

could not be trained on the lines of the deaf mute: there was something very special about this case, a difficulty in moving the tongue and lips. It was different from the case of the deaf mute, who did not learn to speak merely because he was deaf.

A CASE OF DESTRUCTION OF THE COLUMELLA AND PORTION OF THE NASAL SEPTUM.

Shown by Dr. DONELAN. The patient was a man, aged thirty-five. He had presented himself in the out-patient room of the Italian Hospital fifteen months ago. At that time his nose was enormously swollen, and had many of the characters of lupus. There was ethmoidal suppuration, especially in the right nostril. No history of syphilis could be obtained. Patient denied having had any other local sore, sore throat, or rashes. He attributed his disease to a bad smell from a drain-pipe he had been repairing.

A series of mercurial inunctions was immediately given, and this treatment, alternated with mixtures containing corrosive sublimate and potassium iodide, was kept up for six months; afterwards the treatment consisted of the mixtures only. The condition of the nose improved from the first, except the ethmoidal suppuration, which still continued. The lower portion of the cartilaginous septum was destroyed, except a narrow strip of its anterior margin, which was now the sole support of the tip of the nose. He had not seen the patient for over a month until the day previous, when he was arranging to show him here with a view to asking the opinion of members as to whether any plastic operation might be undertaken with advantage.

The PRESIDENT said the appearance of the nose was normal until it was turned up. It should not be very difficult to fashion something to take the place of the septum in front.

Dr. DONELAN wished to point out, before the discussion proceeded, that there was now a suspicious pimple on the tip of the nose, and he wished to hear whether there might not be lupus as well as syphilis in the case.

Dr. H. SMURTHWAITE said that, having no cognisance of the treatment, one would regard it as a case of lupus, especially as the cartilage had been affected and the process had stopped at the bone. The suspicious pimple also simulated lupus. He thought some mechanical treatment would be advisable. Surgery would result in contractions occurring subsequently, thus making the appearance worse. He suggested a flesh-coloured celluloid septum.

Mr. HERBERT TILLEY said he would not like to have to express an opinion as to whether the condition was lupus or tertiary syphilis. If it should prove difficult to get the wound to heal at the limit of the cartilage the trouble might be overcome by resecting the mucous membrane well

on to the vomer, freshening the edges of the mucous membrane, and then letting them heal. These edges would thus be in the region of healthy mucous membrane. He did not agree with Dr. Smurthwaite with regard to mechanical appliances for correcting the deformity. Such might serve if the patient did not blow through the nose or otherwise move it, but in practice all mechanical contrivances were found to be irritating, and did not answer well. They were just as unsatisfactory as bougies for dilating mechanical obstructions; patients found them irritating after the novelty of wearing them had passed off. The speaker suggested it would be well to dissect up a strip of mucous membrane on the under surface of the upper lip and pass it through a hole cut between the upper lip and the floor of the nose; the tip of this strip must then be secured to the freshened tip of nose. He referred members to the work of Roe, of Rochester, U.S.A. The particular method he had just mentioned was easy and the results excellent.

Mr. WHITEHEAD said he would have no doubt that the case was one of lupus, and he did not think it could be regarded as cured at present; there seemed to be still some active ulceration. To cure that, probably the best thing, as Mr. Tilley suggested, would be to bare and remove the edge of the cartilage. Any operative procedure until the cure had resulted would probably be disastrous. Dr. Roe's operation, as described by Mr. Tilley, sounded easy. He (Mr. Whitehead) had not tried it himself. There might be some difficulty about the hair, which might grow into the nose.

Mr. TILLEY, in reply to Mr. Whitehead, said Dr. Roe referred to that point in his description, stating that at first the hair grew, but in time the follicles degenerated, and long hair ceased to form. But even if the hair continued to grow long in its new situation the deformity would be much less than the man exhibited at present.

Dr. FITZGERALD POWELL said that in the present case it was not necessary to use the skin of the lip where hair grew; sufficient tissue for the purpose could be got from the floor of the nose.

Dr. DAVIS thought there was not much disfigurement in the case. The patient was a short man, and most people would not notice anything abnormal about him unless he raised his head.

Dr. STCLAIR THOMPSON said the case seemed to him to be one of lupus, and if any attempt at forming a natural columella were contemplated it should be remembered that the tissues there were of very low vitality and the attempt might fail; and if it succeeded, contraction might set in, and if the tip of the nose were drawn down, it would be uglier than at present.

The PRESIDENT said he would favour a mechanical contrivance for the case, in spite of Mr. Tilley's remarks, and he thought the reference to the intolerance of the nose for bougies did not apply. It was simply necessary in this case to supply an artificial columella, and this would be preferable to running the risk of a plastic operation which might not give a satisfactory result.

Mr. TILLEY, in further comments, suggested that the remarks of Mr. Whitehead did not apply to the case. He (Mr. Tilley) would turn up a piece of mucous membrane from the upper lip, and make a hole through the upper lip communicating with the floor of the nose, bring the flap of membrane up through the hole, and fix it to the tip of the nose. Then the epithelium became squamous and dry.

Dr. DONELAN, in reply, thanked the various speakers. It was with

some hesitation he had at first ordered mercury and iodides in this case, as the appearances were very suggestive of lupus. The remarkable improvement in the first week warranted him in continuing the mixed treatment, and it had been taken with unvarying benefit for fifteen months. He had not seen the patient for a month, and it was only now he noticed the pimple to which he had referred. He thought it might be well to observe the case a little longer before deciding to do anything.

A CASE OF PHARYNGO-KERATOSIS STEADILY IMPROVING UNDER APPLICATIONS OF SALICYLIC ACID IN SULPHO-RICINATE OF SODA.

Shown by Dr. DUNDAS GRANT. The patient was first seen in March, 1906, when she complained of soreness of the throat of three months' duration. On inspection there was found well-marked pharyngo-keratosis. Various isolated applications were made; in the first instance a saturated solution of salicylic acid in alcohol to the spots on the right tonsil, the galvano-cautery to those on the left one, then pure formalin to the left one, and a 10 per cent. solution of sulpho-ricinate of soda to the right. In April she was given a 1 per cent. solution of formalin in glycerine and distilled water, which she applied daily for a month, at the end of which time comparatively no change had taken place. In April, 1906, she commenced the daily application of a 10 per cent. solution of salicylic acid in sulpho-ricinate of soda *to the right tonsil only*; a slow but steady diminution in the size and in the consistency of the spots was observed after a few weeks, and she was then instructed to make the application to both sides; very gradually but steadily this change has continued, until now there is scarcely a vestige of the disease remaining. The patient complained at times of the application producing a dry feeling in the throat at night, but she was very anxious to get rid of the spots, in spite of the fact that she was assured that their presence was not detrimental. The exhibitor would be glad if members of the Society would give the application a trial on any of their marked cases.

The PRESIDENT said he understood the case was shown to exemplify the efficacy of salicylic acid in the cure of the case. But it had been used for a year and the case was not quite well yet. A few years ago salicylic acid was put forward as an absolute cure for mycosis in a strength of 25 per cent. in spirit. There was, at that time, a nurse in the West London Hospital who had very marked mycosis, and he thought it would be a good opportunity to try the remedy. She had it applied, either by himself or by a resident, once every other day. She left at the end of three months, and the best he could say was that the condition was just a little better than before the treatment was commenced. Since then he had not had much faith in the treatment.

Dr. F. DE HAVILLAND HALL said pharyngo-keratosis was very much like warts elsewhere. Sometimes they would disappear in a marvellous way. Once he had a barrister with the condition, which annoyed him in his profession; it was at about the date when the salicylic treatment was first introduced. He applied it himself and instructed the patient how to do so. After three or four months the patient gave it up in despair and was lost sight of. But he heard since that it got well. In view of the present case he would write and ask about the further progress of the case.

Sir FELIX SEMON asked why keratosis must be treated at all, seeing that it always got well of itself. There was no real remedy for the condition; constant applications rendered the patient needlessly nervous, and greater importance was attributed to the malady than it deserved. Moreover, the man who treated such a trifling condition for a long time exposed himself to recrimination. He wished the profession would recognise that keratosis occurred when the patient was run down, and that it would disappear under a change of air and tonic treatment. No local treatment was necessary.

Dr. FITZGERALD POWELL thought Sir Felix Semon's plan would have a serious mental effect on the patient, who thought he was suffering from a real disease, and if something were not done for him he would feel that he had not been justly dealt with. His cases had generally got well after the application of the cautery.

Mr. HERBERT TILLEY said that six months after a discussion on the subject before the Society he became a sufferer from pharyngo-keratosis. The general opinion then held was that if left alone the disease would do quite well, and consequently he did nothing for it. It lasted five months, and the symptoms which troubled him most was an irritating cough, which came on very suddenly. In a week the whole condition disappeared without any discernible reason, and during the whole period of its presence he was in good health. Had he applied any local applications he would probably have attributed the cure to their influence.

Sir FELIX SEMON, answering Dr. Tilley, said he would like to know how he proved a connection between the cough and the keratosis. Sir Felix did not believe keratosis would cause cough. No doubt the galvano-cautery, as mentioned by Dr. Fitzgerald Powell, would get rid of the exudation, as would any other mechanical appliance, but after curing the patient he would be found, possibly already a week later, to have keratotic spots as much as ever. That was what naturally made the patient nervous and anxious. He spoke from a large experience of such cases. The question was whether the medical man ought or ought not to do something if the patient wanted "something to be done." In such a case Sir Felix thought the practitioner served his own interest, the honour of his profession, and the interest of the patient best by not yielding to the patient's wish. Even if the patient, in consequence, went to someone who had not the same compunctions, the practitioner could at least "sleep well in his bed."

Dr. JOBSON HORNE said some years ago, after hearing a similar expression of opinion at a meeting of the Society, acted in accordance with it, declining in a case of keratosis of the fauces to do any local treatment. The patient's friends resented that, and he (Dr. Horne) was asked to do something more for the throat. He therefore applied a solution of formalin, and by the next visit the condition had cleared up, whether because of the formalin, or spontaneously, it was difficult to say.

Dr. DUNDAS GRANT, in reply, agreed with Sir Felix Semon, and said he had acted upon the principle which he had stated, regarding it as the correct one. He put before the patient, as was his custom, the fact that the appearance of the throat was of no significance, but the girl insisted upon trying something for it, and he therefore allowed her to use the remedy he had mentioned for herself. The discomfort she had gone through in using it, he thought, was out of proportion to the result. She used it for one tonsil first, and the change in it was unmistakable. He thought it was his duty and privilege to bring the case before the Society as a properly conducted experiment, though he did not say he would recommend the treatment in every case of the kind.

Mr. TILLEY, in replying to Sir Felix Semon's question concerning the relation between the cough and the keratosis, said it was a cough of a kind which he had never before experienced; the disease produced a feeling as if a needle were scratching the mucous membrane. The cough was spasmoidic and very violent, and he had never suffered from it before the keratosis appeared nor since its disappearance.

CASE OF IMMObILITY OF THE LEFT VOCAL CORD.

Shown by Dr. DUNDAS GRANT. The patient, a woman, aged forty-one, complains of pain in the back of the neck and choking in front of the throat, which has lasted, on and off, for fourteen years. She has occasional attacks of hoarseness; the breathing is noisy during sleep. At the present time there is complete fixation of the left vocal cord in the cadaveric position, or probably somewhat internal to it. The tissues of the larynx behind and below the left cartilage of Santorini appear to be bulging slightly, and not very definitely, into the pharynx, making the hyoid fossa of the left side extend less far backwards than on the right. There are no physical signs, and no radiographic evidence of disease in the thorax. There is occasional difficulty in swallowing, which appears to be spasmoidic; no oesophageal instrument has as yet been introduced. There are no enlarged glands, and no apparent involvement of any other cranial nerves. The exhibitor would be glad of opinions as to the diagnosis between paralysis and mechanical fixation, and, if the latter, the possible nature of the local disease.

Dr. WATSON WILLIAMS regarded the laryngeal appearances and the history as suggestive of syphilis, and in her larynx he found that some contraction and adhesions remained. The right vocal cord, as well as the left, he thought, was involved. She seemed to have cicatricial contraction of the left aryepiglottic fold. As regards her mother's family history one child was born dead, and he believed she had lost another. He could not see on her fauces any evidence of syphilis, but she suffered from intense bitemporal neuralgic headaches, and he would like to know if there was anything about her to support the suggestion of syphilis.

Sir FELIX SEMON regarded it as a case of mechanical fixation. There was considerable enlargement of the left arytenoid cartilage at its base, and it looked as if the left crico-arytenoid articulation were fixed. The right vocal cord was badly abducted, and she had not merely stridor in respiration, but some difficulty in swallowing, and that pointed to a considerable thickening of the cricoid plate. It might be syphilitic, and the abduction of the right vocal cord could be explained in that way. He advised energetic anti-syphilitic treatment.

Dr. GRANT, in reply, said there was a diffuseness of the swelling on the left side which biassed him in favour of the mechanical theory. He would certainly treat her with anti-syphilitic remedies.

A CASE OF THORACIC LYMPHO-SARCOMA, WITH CLINICAL AND PATHOLOGICAL OBSERVATIONS.

Shown by Dr. JOBSON HORNE.

Clinical history.—The patient, a man aged forty-nine, was quite well up to two months previous to his death, his weight being fifteen stone. He first noticed an increasing inability to eat meat, and within a month of the onset of this difficulty he was unable to take solid food, the attempt causing vomiting. He was able to take liquids by drinking fast, only about a teaspoonful returning from three quarters of a pint. Five weeks after the onset of the dysphagia—that is, three weeks previous to his death—there developed difficulty in breathing, which became worse, and was attended with “occasional spasm of the windpipe,” so that he had to sit up. Latterly the attacks became more frequent, recurring twice a day, and lasting half an hour; they were worse at night, so that he was afraid to lie in bed.

Condition on admission to hospital.—He had an anxious look. There had evidently been considerable wasting. The breathing was rapid, and associated with inspiratory and expiratory stridor, and much “wheezing,” as if bronchial. He experienced a feeling as though a weight were on the chest along the sternum.

The examination of the thorax revealed no physical signs of aneurysm. Both sides of the chest moved equally; there was no area of dulness. The area of cardiac dulness was diminished; the cardiac sounds were normal. The larynx was observed to be congested, but the vocal cords moved well, and there was no sign of obstruction. A radiograph of the chest was not obtainable.

The œsophagus permitted the passing of a bougie of the largest size.

The patient rapidly became much worse, very cyanosed, and

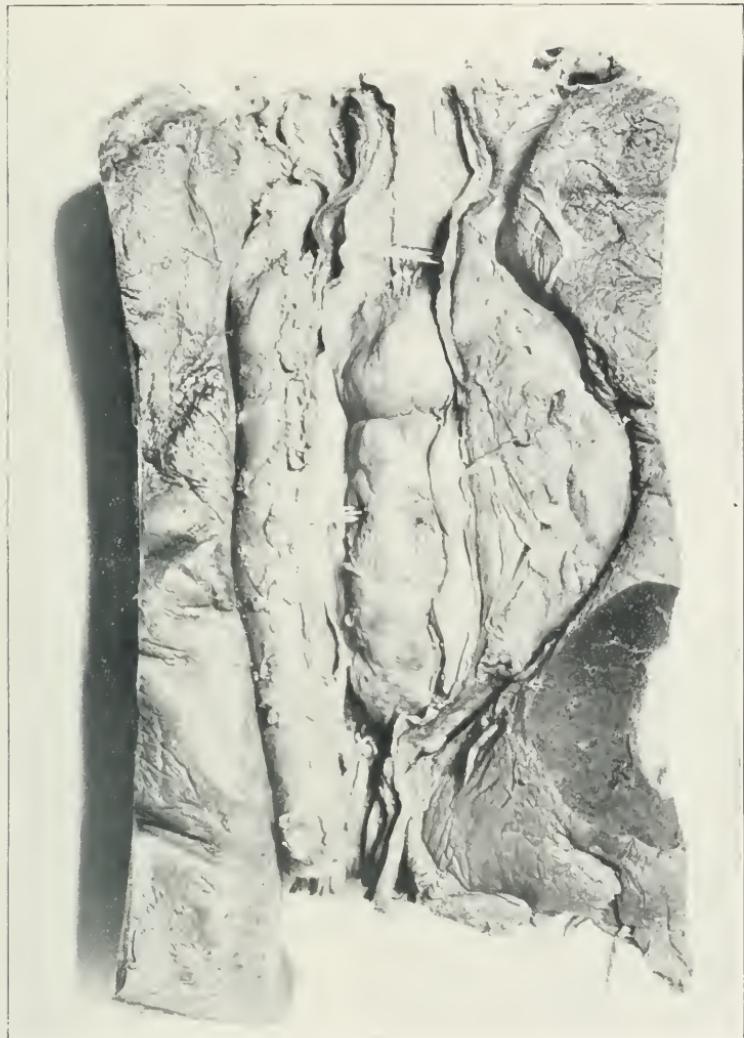


A photograph of the larynx opened from behind to show :

- (1) The localised oedema over the right arytenoid. The oedema has somewhat subsided in the process of preserving the specimen.
- (2) The puckered scar in the fold of mucous membrane passing down between the cartilages of Santorini and Wrisberg, and referred to by the author as the vulnerable spot of the larynx as a source of systemic infection.

TO ILLUSTRATE DR. JOBSON HORNE'S CASE OF LYMPHO-SARCOMA OF THE MEDIASTINUM.

Communicated to the Laryngological Society of London April 5, 1907.



1 2 3 4 5

A photograph taken from behind to show the invasion of the posterior mediastinum by the new growth. The structures entering into the photograph from left to right are :

- (1) The inner portion of the left lung.
- (2) The descending aorta.
- (3) The œsophagus laid open to display that portion of the growth which bulges into, and almost obliterates, the lumen to the extent of 115 mm. The walls of the œsophagus are separated by a glass rod inserted in the upper part at a level corresponding to that of the bifurcation of the trachea. The œsophagus above this level is dilated.
- (4) The main portion of the growth outside the œsophagus, and to the right of the middle line.
- (5) The inner portion of the right lung showing the direct extension of the growth into the lower lobe.

TO ILLUSTRATE DR. JOBSON HORNE'S CASE OF LYMPHO-SARCOMA OF THE MEDIASTINUM.

Communicated to the Laryngological Society of London April 5, 1907.

distressed, and on the second day after admission death occurred from asphyxia.

The post-mortem examination revealed in the posterior mediastinum a lobulated mass of new growth, the size of a large pear, apparently springing from the bifurcation of the trachea, and extending forwards into the pericardium and downwards and backwards for the most part to the right of the middle line. The growth had bulged into the lumen of the oesophagus so considerably that the mucous membrane covering it was extremely thinned and atrophied, the oesophagus itself being obstructed by the new growth to the extent of 115 mm. in the vertical direction, the growth within its walls measuring 40 mm. across, whilst the entire width of the growth in the posterior mediastinum was 70 mm. There was some dilatation of the oesophagus above at the level of the bifurcation of the trachea. Both pulmonary veins were surrounded by the growth, the right bronchus, although not invaded, was considerably narrowed. There was a direct extension of the growth into the lower lobe of the right lung. There was much surgical emphysema round the root of the right lung, and also between the chest and the pleura; the lungs were somewhat collapsed, but presented no further evidence of disease.

Microscopic examination of the growth showed it to be a round-celled sarcoma.

The larynx presented, over the right arytenoid region, a circumscribed area of oedema, about the size of a raisin. On the inner aspect of the right arytenoid there was the puckered scar of an abrasion, situated in the fold of mucous membrane passing down between the cartilages of Santorini and Wrisberg, a site which I have described elsewhere as one lending itself to systemic infection, and which I have termed the vulnerable spot in the larynx.¹ It is indicated in the accompanying diagram by a dotted line, and must be distinguished from the common site of a tuberculous ulcer, which is immediately behind and a little below the vocal process (the posterior sesamoid cartilage) of the vocal cord. There was no marked enlargement of the cervical lymphatic glands.

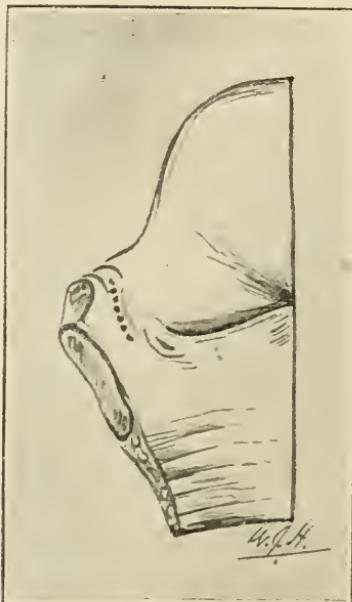
The case presents some unusual features of clinical and pathological importance:

(1) The extent of the occlusion of the lumen of the oesophagus by an extrinsic new growth.

¹ Introductory paper to a discussion on "The Upper Respiratory Tract as a Source of Systemic Infection," British Medical Association Annual Meeting, Swansea, 1903.

(2) The possibility of passing a bougie of the largest size, in spite of such marked œsophageal obstruction, illustrates both a clinical fallacy, which may attend the use of soft rubber instruments, and also the value of œsophagoscopy in the diagnosis of such cases; it being improbable that a rigid tube would have passed the growth.

(3) The localised œdema of the larynx might be accounted for by the conditions within the thorax. At the same time it is as well to consider the possibility of such œdema being occasioned by



A diagram of the interior of the left half of a larynx to show the site referred to as the *vulnerable spot*, which is indicated by a dotted line.

a local infection at the site indicated. The presence of the scar in the larynx raises the interesting question whether the thoracic growth were not the result of an infection, and whether lymphosarcoma may not eventually have to be numbered, together with the lesions met with in Hodgkin's disease, amongst the infective granulomata. The question is not necessarily negatived by the absence of enlarged cervical glands, for I have shown experimentally that after an inoculation the proximal group of glands may not be permanently affected, whilst *post-mortem* a distal group may be found markedly enlarged.

PROCEEDINGS OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thirtieth Ordinary Meeting, held at No. 11, Chandos Street, Cavendish Square, W., on Saturday, March 9, 1907, at 10 a.m.

The President, A. E. CUMBERBATCH, F.R.C.S., in the Chair.

(Continued from page 201.)

The following communications were made :

A CASE OF CHRONIC LEFT OTITIS MEDIA OF TWENTY YEARS' DURATION ; CARIES ; CHOLESTEATOMA ; ATTACKS OF VERTIGO ; RADICAL MASTOID OPERATION ON FEBRUARY 20 ; UNINTERRUPTED RECOVERY.

BY JAMES DONELAN.

Dr. DONELAN said that in the case of so very recent an operation it was obviously unnecessary to say that the words "uninterrupted recovery" referred only to the patient having got over the immediate effects of the operation. It was on account of some peculiar circumstances in the recovery, and not because the case was otherwise specially interesting that it was brought forward.

The patient, a woman, aged twenty-eight, had suffered from otitis of the left ear with perforation in the course of measles some twenty years ago. The discharge had continued since almost without interruption. The patient had, however, made no effort to check it as she had been told it would be dangerous to stop a discharge from the ear. She consulted the present reporter four or five years ago, but she discontinued treatment. He saw her again about two years ago and two or three times since. While there was nothing in her general condition to account for the change she had become greatly emaciated and was very depressed. Latterly she had frequent attacks of slight vertigo with a disposition to fall to the right. There was no pain, no fever, and, except the deafness and vertigo, nothing to direct attention specially to the ear.

She was examined under anaesthesia on February 13. The left tympanic membrane was represented by a narrow band round a large central perforation, through which a mass of granulation tissue and cholesteatoma protruded. Carious bone could be felt in

the aditus; the malleus and incus had apparently disappeared. As there were no urgent symptoms, and the patient could not come into hospital for a few days, further measures were postponed for a week.

On February 20 the mastoid antrum was opened by Stacke's method, care being taken to preserve the periosteum. The antrum contained pus, cholesteatoma, and a small sequestrum. The mastoid being eburnated and no mastoid cells traceable in immediate relation to the antrum, the cavity was enlarged no more than was absolutely necessary. The external wall of the attic was removed, and the whole space formed by the operation carefully curetted and disinfected with 1 in 10 carbolic solution.

The mastoid cavity and aditus, as exposed, formed a small cavity extending half an inch from the posterior wall of the tympanum, to which it corresponded in depth, and was about three eighths of an inch high. A flap, a little larger, was cut from the periosteum and pressed into the cavity, and a piece of tissue of corresponding size was raised from beneath the cartilage of the auricle, remaining attached, however, near the meatus. This was turned forward and also inserted into the cavity. The post-auricular wound was then closed by sutures, no drain being used. A loose strip of cyanide gauze was inserted in the meatus and the usual dressing applied. The patient made an absolutely uneventful recovery. The post auricular wound healed by first intention, and there was no discharge from the meatus which remained absolutely dry. The size of the meatus was not, however, what the operator hoped for, having become much occluded. Contraction of the cicatrices was, however, going on, and the passage had become more open in the last day or two. The hearing, which was completely lost, except in contact, before the operation, had already considerably improved. He would be glad to hear from other members what was their experience of such unusual, though, apparently, not unfavourable, termination of these operations. He had had another similar case some two years ago, and the patient had remained quite well since, though the improvement in the hearing was not so marked.

Dr. DUNDAS GRANT remarked that even when considerable narrowing was present soon after the operation, there sometimes occurred a kind of centrifugal contraction by which the soft parts were drawn closer to the walls of the bony cavity, so that there was a probability of this taking place in Dr. Donelan's case, even if complete occlusion had occurred. There was sometimes no

recrudescence of suppuration, though the patient would have to be instructed to report the occurrence of pain in the ear or other symptoms indicating such an event. In a case of Dr. Grant's the patient, after a number of years, returned, reporting the presence of pain in the ear; but this was found to be occasioned by a carious molar, the removal of which caused the entire disappearance of the pain.

Dr. DONELAN, in reply, said he was glad to know no untoward symptom had followed the occlusion in Dr. Grant's case. The other case to which he had himself referred was that of an Italian waiter, who in all the vicissitudes of his calling had remained quite free from any inconvenience. Might it not be possible in the case of these small mastoid antra, by operating under absolutely aseptic conditions, to aim at obliterating the cavity, so to speak, by first intention? In cases where there was acute virulent septic conditions such an attempt would probably be attended with danger; but where the operation was undertaken, as in this instance, when there were no acute symptoms, the experience of the cases mentioned seemed to show that it was not unreasonable to expect a favourable result.

A CASE OF CHRONIC MIDDLE-EAR SUPPURATION, WITH NECROSIS OF THE POSTERIOR LABYRINTH, FACIAL PARALYSIS, LARGE PAROTID SWELLING, AND PUS TRACKING DOWN BEHIND THE JAW TO THE SOFT PALATE AND TONSIL.

BY ARTHUR CHEATLE.

This communication appeared in the April issue of this JOURNAL.

Mr. C. E. WEST said he had a closely parallel case under his care—chronic suppurative otitis media, long-standing, with no very distinct history, in a boy aged fifteen. Last Christmas he had severe pain in the side of the head. He did not see him at that time. He came to hospital in February with profuse discharge, partially recovered facial paralysis, and a tongue of granulations along the floor of the meatus, making it impossible to see the exact condition of the tympanum. It was operated upon, and he had a softened, foetid cholesteatoma occupying the antrum and tympanum; and when that was cleared away, the whole exterior canal and the upper part of the vestibule were found open, and through the opening a mass of granulation tissue was protruding. The

granulations seen in the meatus were found to be attached to the postero-inferior part of the inner tympanic wall, and when they were curetted away the bone crumbled before the spoon. The whole vestibule was cleared out, and a movable mass of bone was found internally. The opening behind was enlarged, and the mass of bone removed by a bent hook through the posterior opening, above and behind the facial nerve, that nerve being left exposed, stretching across from one side to the other. When a probe was passed inwards posteriorly, it was found to be limited by the posterior part of the petrous. The patient was getting on well, and the facial paralysis had nearly disappeared. The sequestrum was very like the one exhibited that day, and included the inner wall of the vestibule, the posterior canal, the inner ends of the superior and external canals, and the posterior part of the internal auditory meatus. Before the operation the boy had no evidence of giddiness, and he walked firmly. He thought there must be a stage in those cases in which there were labyrinthine symptoms, but it was the stage of invasion, before the labyrinth, vestibule, and canals had ceased to be functional organs, not the old stages when the giddiness went off completely, and when uncompensated muscular action had also disappeared, and the patient had recovered muscular certainty again. With regard to suppurations in the labyrinth, the risk was always in the direction of extension along the internal auditory meatus and the meninges; and it seemed necessary to drain the vestibule thoroughly, opening it below the facial canal as well as above it.

Mr. H. A. BALLANCE desired to offer one or two remarks about the facial paralysis. The facial nerve was destroyed, therefore there was no use in waiting any longer before performing a nerve anastomosis to relieve the palsy. It was now four months since the facial palsy had started, and the ear was dry, and, although there was some eczema of the auricle, that could soon be put right. There was no possibility of the facial palsy getting right of itself, and he thought now would be the time to proceed with the anastomosis. Only two days ago he saw a case of facio-spinal anastomosis, which he had done six years previously, in a woman, and even after that time there were still associated movements between the face muscles and the trapezius and the sterno-mastoid. When she moved her face the shoulder also moved, and she could not move the shoulder without the face moving also. That was a good reason for undertaking facio-hypoglossal anastomosis rather than facio-accessory.

Abstracts.

FAUCES.

Goris, C.—*Note upon the Removal of a Goitre from the Tip of the Tongue.*
“La Presse Oto-laryngologique Belge,” January, 1907.

A lady, aged fifty, fell and bruised the end of her tongue between her teeth. A month later a little swelling appeared at the point of injury, which grew rapidly and quickly attained the size of a large nut. The tumour was slightly to the right of the median line, close to the tip, and was situated in the substance of the tongue without adhesions to the mucous membrane. After removal it was examined microscopically by Professor Van Duyse, and proved to be an aberrant para-thyroid.

Chichele Nourse.

Hunter, John.—*Facial Tonsils; Abnormal Conditions and Treatment.*
“Canadian Practitioner,” December, 1906.

This is a practical article dealing with the subject as at present understood. It contains one or two points of interest worthy of mention. Speaking of the submerged tonsil the writer says that the tissues may present the appearance of a compressed sponge, accompanied by more or less atrophy of structure; also that when pyogenic bacteria become occluded in the crypts and follicles they give rise to chronic suppurative processes.

He believes in treatment of the submerged tonsil by thorough removal. His method is to seize the tonsil in the claws of a double tenaculum, one prong being inserted into the upper end and the other in the lower end. Then, drawing the tonsil inwards and forwards, a snare is adjusted round its base and its removal affected. Removal piece-meal by a tonsil punch, and enucleation by the finger, are also mentioned.

Price-Brown.

Ziegel, F. L.—*A Case of Perforation of the Soft Palate due to Tertiary Syphilis; Staphylorrhaphy.*

In this case a gumma formed in the soft palate, broke down, and a perforation resulted. Vigorous anti-syphilitic treatment was carried on for two months, after which, under cocaine anaesthesia, the edges of the cleft were pared and five sutures passed, so as to approximate the edges. The two central sutures tore through, the others held. Stimulation with nitrate of silver, however, effected complete healing.

W. Milligan.

MacLaren, Roderick.—*The Removal of Enlarged Tonsils.* “Brit. Med. Journ.,” March 23, 1907.

The patient is deeply anaesthetised and laid upon that side which allows of the greatest illumination of the back of the mouth. The tonsil of the side upon which the patient is lying is grasped by a vulsellum, one blade being placed on the nasal and the other on the laryngeal end of the tonsil. The tonsil is then drawn inwards and forwards. If the tonsil can be well drawn away from within the pillars no knife is used, but if not, a transverse incision is made, starting from about the middle of the

anterior pillar and extending outwards for about three-quarters of an inch. The tonsil is now forcibly pulled out, and a blunt dissector is pushed behind it from above. It is then systematically teased from its connections. There is no recurrence of glandular tissue after this method of removal, and healing is, as a rule, complete within ten days.

W. Milligan.

Donoghue, F. D.—*Cervical Adenitis with reference to Mouth Infection.*
“Bost. Med. and Surg. Journ.,” March 28, 1907.

The conclusions of this paper, based on 300 cases, are :

(1) Enlarged glands of the neck are not, primarily, tuberculous, and bear the slightest relation, if any, to general or pulmonary tuberculosis.

(2) They are due to a mixed infection of pus-producing bacilli.

(3) They will quickly resolve if the source of the infection is removed before the glandular tissue becomes disorganised.

(4) If disorganisation takes place the gland should be poulticed until it is practically liquefied. It should then be opened by a stab-puncture, emptied and drained.

(5) Cases seen late, with a large mass of partially calcified and partially disorganised glands present, call for a thorough and extensive dissection.

Macleod Yearsley.

PHARYNX.

Freer, Otto T. (Chicago).—*New Method of Removing Adenoids through the Nasal Fossa.* “Archives Inter. de Laryngologie, d’Otologie,” etc., September—October, 1906.

Dr. Freer advocates the removal of adenoids by means of a special pair of forceps modelled on those of Ingals. He passes the forceps through the fossæ, and with the left forefinger in the post-nasal space engages the adenoid tissue. A general anaesthetic and cocaine locally is used.

Anthony McCall.

NOSE.

Cohn, G. (Königsberg).—*Old and New on Nasal Tuberculosis.* “Arch. f. Laryngol.,” vol. xix, Part II, 1907.

The author of this paper discusses some still undecided questions in regard to nasal tuberculosis. After reference to several recent contributions to the subject, he gives the conclusions to which his own observations have led him. He believes that although the occurrence of intermediate forms renders impossible an absolute distinction between nasal lupus and nasal tuberculosis, yet most cases are easily referable to one or other of the following types.

(a) Lupus. The patients are usually young and otherwise healthy individuals. The disease, which may be accompanied or not by lupus of the neighbouring skin, at first often presents the appearance of a simple eczema of the vestibule. Later, nodules and granules are found, most

frequently on the anterior part of the septum, but also on the turbinates and the floor of the nose. The progress is slow, and there is little disposition to break down. The tendency to healing under appropriate treatment is considerable, although recurrences are frequent.

(b) Tuberculosis. The patients are generally ill-nourished and the subjects of advanced tuberculosis of the lungs, the larynx, and often also of the pharynx. Ulceration is frequent, tumour formation less so; the bone is very rarely affected. Progress is fairly rapid, and death is usually not long delayed.

Lupus of the exterior of the nose originates, in Dr. Cohn's opinion, most frequently at the anterior nasal angle, that is, the point at which the alar and triangular cartilages meet at the anterior margin of the nasal orifice, a small space which can only be satisfactorily seen by rhinendoscopy. For this purpose the author employs Professor Gerber's mirror.

Lupus of the nasal mucosa is very frequently primary, and may persist for months or years, unaccompanied by any other tuberculous affection.

Thomas Guthrie.

Kramm (Berlin).—*To what extent can we depend upon Intra-nasal Treatment in Chronic Suppurations of the Frontal Sinus and the Ethmoidal and Sphenoidal Cells?* “Zeitsch. f. Ohrenheilkunde,” vol. lii, No. 1.

The author considers that it is possible, in most cases, to make intra-nasally a wide opening into the frontal sinus and to curette parts of it, as also the edges of a portion of the anterior ethmoidal cells, and to remove almost completely the middle and posterior ones, as well as to make a wide permanent opening in the sphenoidal. Comparing this with Killian's operation, he is of the opinion that the latter is the only one available for the orbital ethmoidal cells, that it is the best one for the treatment of the frontal and frontal ethmoidal cells; it is the more favourable one for the treatment of the most anterior cells covered by the uncinate process and also for the clearance of the sphenoidal, because, by the extra-nasal operation this is attacked from in front, while, by the intra-nasal one it is attacked from in front and below. For the removal of the middle and posterior ethmoidal cells and the extensive opening of the sphenoidal, the intra-nasal operation has completely taken the place of Killian's. It, therefore, appears that both methods are nearly equally good for the treatment of the most dangerous sections of the accessory cavities, especially those parts lying near the lamina cribrosa, with the exception of the orbital ethmoidal cells. In cases in which the intra-nasal operations, carried out as described in this paper, do not succeed in completely removing the patient's discomfort, they are, nevertheless, neither superfluous nor useless, but have the following advantages: (1) the chiselling open of a healthy frontal sinus is almost excluded, as, in view of the large access afforded by the intra-nasal operation, it can, in almost every case, be made out with certainty whether there is suppuration in the frontal sinus or not; (2) before the carrying out of an external operation the internal one renders it possible, by probing from the nose to the wide opening of the frontal sinus, to decide as to the extent, but more particularly the height, of this cavity, whereas the selection of the most suitable extra-nasal operation is facilitated; (3) the indications for extra-nasal operation are more simple and sure; (4) Killian's operation runs a quicker and safer course in cases

of multiple sinusitis, as it involves only the frontal sinus, the orbital cells, and the anterior ethmoidal cells; for the removal of the last, the section of the upper half of the frontal process of the superior maxilla is often sufficient, and this can be carried out with a correspondingly smaller skin incision.

Dundas Grant.

Carter, W. W.—*Primary Carcinoma of the Inferior Turbinated Body, with Report of a Case.* “Medical Record,” March 16, 1907.

The patient was a female, aged thirty-eight. On examination a cauliflower-looking mass attached to the anterior extremity of the right inferior turbinated body was found. Its backward extensions could not be properly determined. There was a serous and non-fœtid discharge from the nasal passage. A piece of the growth was removed, and found, upon microscopic examination, to be a typical columnar-celled epithelioma. After free opening-up of the nasal passage the growth was found to be confined to the inferior turbinated body. The whole of the external wall of the nasal cavity down to, and including a portion of, the floor was removed, together with the inferior and middle turbinates, and a large portion of the anterior wall of the antrum.

The special points of interest in the case are:

(1) The extreme rarity of primary cancer of the nose, and especially of the inferior turbinate.

(2) The age of the patient, few cases having been met with before the age of forty-five.

W. Milligan.

Coffin, Rockwell A.—*A New Operation for Correction of the Nasal Septum.* “Boston Med. and Surg. Journ.,” January 17, 1907.

The author considers the most objectionable features of the “window operation” to be the length of time required to perform it, and the “strain” to patient and operator. He claims to overcome both objections in the operation described.

He performs his operation in two short sittings. At the first sitting a “more or less perpendicular” incision is made anterior to the deviation, and the muco-perichondrium raised as far as the edges of the deviation. The space thus made is injected with sterilised vaseline, and the nose left for one week. At the end of that time incision is made on the opposite side and anterior to the first cut, and the muco-perichondrium raised. The deviation was then removed and a pledget of antiseptic cotton introduced for twenty-four hours.

Macleod Yearsley.

LARYNX.

Glas, E. (Vienna).—*On Cysts of the Larynx.* “Arch. f. Laryngol.,” vol. xix, Part II, 1907.

Dr. Glas distinguishes the following varieties of laryngeal cyst:

(1) *Retention cysts of the infra- and intra-epithelial glands.*—The most common situation for cysts of the infra-epithelial glands is the anterior surface of the epiglottis, but they are sometimes found on one of the four situations occupied by the “glandulæ aggregatæ” of Luschka. Cysts of this nature on the true cords are extremely rare, owing to the

scarcity of glands in this region. Many cysts of the true cords are really polyps, the lymph-spaces of which have undergone dilatation.

The intra-epithelial glands found by Dr. Glas in the epithelium of the epiglottis, and similar to those which he previously described in the nasal mucosa, are sometimes responsible for small cysts. In addition, some intra-epithelial cysts appear to arise from distension by serous fluid of the intercellular spaces.

(2) *Congenital cysts*.—These rare structures are to be explained by the occurrence of developmental errors at the points of union of tissues whose origin is different. While the epiglottic and thyroid elements are formed from the visceral arches, the remainder of the larynx owes its origin to the pharynx. It is most probable that certain cysts of the aditus laryngis result from a faulty union of these structures.

(3) *Traumatic cysts*.—The author describes a unique case in which a cyst, involving the laryngeal surface of the epiglottis and extending over the anterior portion of the left ventricular band, appeared in a patient who had undergone laryngo-fissure and treatment by dilators for stenosis. This cyst is probably to be regarded as an implantation dermoid.

(4) *Lymph cysts*.—These consist in most cases of polyps which have undergone cystic degeneration. Cystic change of this nature is most often seen in the case of those new growths which spring from situations rich in adenoid tissue, such as the sinus of Morgagni, the posterior surface of the epiglottis, etc.

The author reports shortly sixteen cases observed by himself. Of these six occupied the anterior surface of the epiglottis, two the right ventricle, two the left aryepiglottic fold, and one each the laryngeal surface of the epiglottis, the left ventricle, the left sinus, the right vocal cord, and the vallecula; while one was the traumatic cyst mentioned above.

Thomas Guthrie.

Miller, F. E. (New York).—*An Original Research on the Cause of Vocal Nodules.* “Boston Med. and Surg. Journ.” January 10, 1907.

The author considers these nodules can be produced “by infection of the tonsils and perverting the action of the thyro-arytenoideus externus.”

Macleod Yearsley.

Dupuy, Homer.—*Successes and Failures in Intubation.* “New Orleans Med. and Surg. Journ.”, March, 1907.

The only sign which serves as a guide when to intubate is persistent and progressive dyspnoea. The causes of failure in intubation are unskilfulness and inexperience, disregard of the all-important fact that persistent and increasing dyspnoea calls for operative relief, neglect of intubation in favour of antitoxin. The whole paper is a plea for early intubation.

Macleod Yearsley.

Escat, E. (Toulouse).—*Uses and Value of the Galvano-Cautery in Various Forms of Laryngeal Tuberculosis.* “Archives Inter. de Laryngologie, d’Otologie,” etc., September—October, 1906.

The author refers to the use of the galvano-cautery in laryngeal tuberculosis as being an old treatment brought forward again. He has treated cases since 1895, and, although he considers the method efficacious, he thinks great judgment is necessary in determining which type of

tuberculosis will give the best results. He considers the galvano-cautery most effective in cases where the lesion is torpid, and localised general infiltration is best left alone.

Anthony McCall.

Althoff, E. (Strassburg i E.)—*On Endotheliomata of the Interior of the Nose and the Accessory Cavities.* “Archiv für Laryngol.,” vol. xix, Part II.

The author of this paper defines an endothelioma as a malignant tumour originating from endothelium. He refers to the various points of similarity between endothelium and epithelium, but does not agree with Stöhr as to the identity of the two. An endothelioma often very closely resembles a squamous-celled carcinoma. It is distinguished mainly by the following characteristics:

- (1) A plexiform structure, resembling lymph-channels and spaces.
- (2) The cells are oval and possess an easily-stained nucleus. As compared with cancer-cells they are remarkably uniform in both size and shape.
- (3) Although cell-nests are present they contain no horny substance: no intercellular bridges, and no prickle-cells are found.
- (4) The tumour appears to grow largely by the conversion of the cells of neighbouring tissue-spaces into tumour-cells, and in some cases the actual point of transition may be discovered.
- (5) The nuclear-mitoses are different from those of cancer-cells.
- (6) In a few cases fine connective-tissue fibres are found passing in between the individual tumour-cells—a point of resemblance to sarcoma.
- (7) The tendency to metastasis is very slight; and the rate of growth in some cases extremely slow.

The author was unable to find records of more than nineteen cases of endothelioma of the nose and its accessory cavities. He describes at length three cases of his own, in which the growth was of large size, and all of which terminated fatally. Microscopical examination showed in all cases well-marked plexiform arrangement; and although in only one case could the actual conversion of the cells of the lymph-spaces into tumour-cells be made out, yet in all the intimate relations between the tumour-cells and the connective-tissue stroma strongly suggested that the former had originated where they were found, and had not reached their position by immigration. Dr. Althoff could find no previous description of certain very striking gland-like structures, which were present in one of the cases. In two of the patients symptoms had existed for a period of only four weeks and two months respectively; while in the third case the disease appeared to have been present for twenty-three years.

Thomas Guthrie.

Crawford, G. R.—*Report of a Case of Abscess of the Larynx.* “Maritime Medical News,” January, 1907.

In this case there was nothing extraordinary in the history, except that the patient had just recovered from an attack of typhoid fever. Laryngological examination revealed redness of the inner coating of the larynx and swelling of the right side. Movements of the vocal cords were defective. The diagnosis was subglottic laryngeal obstruction, but of what nature it was impossible to say. The attacks of dyspnoea, while occurring only three or four times in twenty-four hours, were often very severe.

Tracheotomy was prepared for, should emergency demand it. It was put off, however, on account of the comparative comfort which the patient enjoyed for many hours each day.

Finally, the house-surgeon was summoned one night after midnight to do tracheotomy. The operation, however, was done too late.

Post-mortem examination revealed an abscess of the cricoid extending to the right arytenoid cartilage. There was a small opening at the upper end of the abscess penetrating the larynx; and no doubt the pus, finding sudden and free vent into the narrowed glottis, produced death by suffocation before surgical relief could be given. *Price-Brown.*

Hammerschlag, Victor (Vienna).—*On Disturbance of Speech in Childhood.* “Arch. of Otol.”, vol. xxxv, No. 4.

Hammerschlag describes a case of his own, and refers to others by Schepers, Schwarz, Calmeil, and Möller. Schepers’ (*Berl. klin. Woch.*, 1872, p. 517) was the case of a girl, aged eight, who, on the fourth day of measles, became comatose, and on waking, three days later, was completely aphasic; the legs were paralysed and there was ataxia of the upper extremities. Gradual recovery took place. It is supposed that acute hydrocephalus had been present. Schwarz’s case (*Deutsch. Archiv für klin. Med.*, Bd. xx, 1877, p. 615) was one in which the child became aphasic, with motor disturbance in the right upper extremity eighteen days after the beginning of measles. Gradual recovery took place. Calmeil’s (*Arch. f. Kinderheilk.*, 1897, vol. xxi, p. 297) was that of a boy who, after measles, suffered from severe convulsions with continuous coma, from which he woke deaf, blind, and dumb. Fourteen days later the hearing returned, and at the end of a year he was able to speak a few words. He remained blind, and became epileptic and hemiplegic on the right side. He died when twenty-two years of age, and sclerosis and atrophy of the entire left hemisphere were found. In Möller’s case (*Arch. f. Kinderheilk.*, vol. xxi, 1897, p. 297) a girl had lost all power of speech, except for a few words, after measles. She understood all questions and answered by gestures. She gradually learned to speak, and after a few months the speech was normal. Hammerschlag’s own case was one of a child, aged five and a half, who had developed normally during her first years, and at the age of fourteen months could walk and articulate several words, and seemed to have perfectly normal hearing. She was then taken ill with convulsions, rise of temperature, and measles eruption, and was convalescent after sixteen weeks, but after the first seizure the arms and legs of the child appeared to be paralysed, and the rudiments of speech were lost. After one year a number of syllables could again be pronounced; in the third year the child slowly learned to walk and to run, but no further progress was made as regards speech. Otherwise the child was entirely healthy: the intelligence seemed perfect. It followed various orders, and could, for instance, show its tongue when called on. As regards the hearing power, the vowels *a*, *i*, and *u* (German) could be heard when spoken in a low conversational voice at a distance of at least 10 mm. (? m.), and all the Hartmann tuning-forks (*c*—*c⁵*) were perceived on both sides up to the point of dying out. Hammerschlag discusses the question as to whether this “motor aphasia” was congenital or acquired in early childhood. Against the theory of congenital disease was the absence of any hereditary taint and the fact that the power of walking was completely lost after the convulsive seizure, as well as the

clinical fact that aphasia occurs in the course of acute infectious febrile disturbances in childhood. [This paper is of great interest in connection with a case of the kind brought before the Laryngological Society of London by Dr. Davis and reported in this journal, p. 210.]

Dundas Grant.

TRACHEA.

Watson, Edward C.—*Intra-tracheal Medication.* “Queen’s Quarterly,” January, 1906.

The writer is a firm advocate of this method of internal medication in suitable cases. He looks upon pure olive oil as the best vehicle for the administration of the drugs required, and advises the use of guaiacol, menthol, camphor, ichthylol, chlorotene, and the bromides, in strengths varying from 2 to 5 per cent. in solution.

The preparations should be filtered and heated to blood temperature before injection. The initial dose is one drachm, gradually increased to three or four drachms in suitable cases.

During the treatment all cough mixtures should be discontinued, and stomachics and tonics alone given.

The cases specially benefited by this method of treatment are those of chronic bronchitis, winter cough, chronic laryngitis, early tuberculosis of the lungs, etc. Neurotic cases and patients subject to dry cough are not considered to be amenable to this method of treatment.

Price-Brown.

Hirschland, L. (Wiesbaden).—*A Case of Foreign Body in the Left Bronchus.* “Monats. für Ohrenheilkunde,” vol. xl, Part 12.

Dr. Hirschland relates the case of a boy, aged ten, who came to him suffering from great dyspnoea, with violent cough, and expectoration of offensive, blood-stained sputum. Ten days previously the boy had had a sudden choking fit whilst eating, and from this time the dyspnoea had been present. The purulent, offensive expectoration appeared thirty-six hours later. The larynx was much congested, and there was diffuse redness of the tracheal wall. Over the left lung the percussion note was weak, and the breath-sounds were diminished and difficult to hear below the level of the fourth rib. The temperature was slightly elevated, pulse 90, breathing rather accelerated and superficial. A bougie was passed down the oesophagus, and no obstruction was found. The following morning the pharynx and larynx were well cocainised, and the upper part of trachea painted with a 20 per cent. solution of alypin, to which a little suprarenalin had been added. With the patient in a sitting position a tube of 7 mm. calibre was passed into the trachea, and, after considerable difficulty, was made to enter the left bronchus. After removing the mucus and pus a soft, yellowish-red mass was seen to be blocking the entire lumen of the bronchus. Repeated attempts to remove the foreign body with Schrötter’s forceps were made, but were rendered useless by violent fits of coughing. The tube was then removed and another substituted, the end of which sloped off obliquely. This was passed into the bronchus, and the narrow part of the tube pressed between the foreign body and the wall of the bronchus. The forceps were again applied, and

as the mass was now felt to be movable the tube and forceps, with the foreign body, were all drawn upwards and removed together. A large quantity of blood-stained, purulent sputum was immediately expectorated. The patient's temperature rose to 103.2° F. the same evening, and numerous rhonchi and moist sounds were heard all over the left lung. These persisted for a few days. After the second day the temperature was normal, and at the end of a week the sputum ceased to be offensive. The foreign body consisted of a small piece of meat, held together by a strong band of fascia, and much decomposed.

Knowles Renshaw.

ŒSOPHAGUS.

Scannell, D. D.—*Removal of Foreign Body from Œsophagus seven weeks after Lodgment, with aid of X-rays, without Operation.* “Boston Med. and Surg. Journ.,” December 27, 1906.

The patient was a child, aged seven. The foreign body was the shuttle of a sewing-machine. There was comparative freedom from obstruction and no pain. Attempts were made to remove it with the aid of the fluoroscope, and a coin-catcher was twice passed. Finally, an adult-sized bristle probang was used, which pushed the body into the stomach. It was passed per rectum thirty-six hours later.

Macleod Yearsley.

EAR.

Takabatake (Japan).—*On the Occurrence and Absence of Crossed Paralyses and Disturbances of Speech in Otitic Suppurations of the Brain and Meninges.* “Arch. of Otol.” vol. xxxv, No. 5.

The author formulates the question as to whether the crossed paralyses and disturbances of speech observed in otitic intracranial suppurations are caused by the pressure exerted by the accumulations of pus in the neighbouring centres or tracts, or are the result of an affection of the cortical centres or of the tracts. Macewen and von Bergmann originally believed that the paralyses were due to the pressure of the abscess on the temporal lobe extending to the motor cortical centres. Sahli held that they could only be produced by an injury of the internal capsule, and Koerner agreed with this, attributing the condition to the extension of inflammatory oedema from the temporal lobe abscess to the internal capsule, which may take place before mechanical pressure is possible. A case is quoted of chronic left-sided otorrhœa, in which vertigo, fever, headache, etc., developed, but with clearness of the sensorium. A week later the temperature rose considerably, but the pulse only to a very slight extent, and a striking disturbance of speech set in so that the patient was unable to remember certain words or the names of objects held before her. Lumbar puncture evacuated clouded fluid with an increased quantity of leucocytes. Kernig's contracture became pro-

nounced, more on the left side, and clonic convulsions of the right hand occurred. Two days later the patient was completely aphasic, could not protrude the tongue, and, in addition, had moderate convulsions in the right hand and restless movements of the left leg. Moderate rigidity of the neck followed. Lumbar puncture revealed diplococci. After another day the right arm could not be moved; incontinence of urine followed; the pulse rose rapidly to 154, the respiration to 72, and death took place, there being, unfortunately, no autopsy.

Dundas Grant.

Neumann, H. (Vienna).—*Simple and Radical Mastoid Operations under Local Anæsthesia.* “Arch. of Otol.” vol. xxxv, No. 4.

Abridged translation by Dr. M. J. Ballin, New York, from the *Zeitsch. f. Ohrenheilk.*, vol. li, No. 2, abstracted in the JOURN. OF LARYNGOL., RHINOL., AND OTOL., for August, 1906.

Dundas Grant.

Wiener, Alfred (New York).—(1) *A Case of Brain Abscess following Traumatism and Acute Mastoiditis; Operation; Recovery.*

As a result of a blow on the head the patient suffered from haemorrhage from the right ear and word-deafness. He was recovering when he had an attack of tonsillitis followed by acute otitis and mastoiditis. The mastoid was freely opened, and the dura, which was exposed, was over a limited area inflamed and granulating. The symptoms persisted and the dura was incised, pus escaping. This was found to issue from an abscess on the surface of the temporo-sphenoidal lobe.

(2) *A Case of Hysteria simulating Brain Abscess after Operation for Secondary Mastoiditis.*

The patient, a male, aged twenty-two, was the subject of three operations on the mastoid process. After the third one he had symptoms of mental disturbance, and a tendency to coma and collapse, suggesting cerebral haemorrhage or latent cerebral abscess. The author considered the symptoms anomalous, and waited till next day, when the patient's mental condition became normal, confirming the impression that the condition was one of hysteria. Among other symptoms was slowness of pulse. This occurs in latent cerebral abscess, and has been noticed in the early stages of meningitis, in apoplexy, and in tumours of the cerebrum and medulla, but also in some neuroses, as hysteria, mania, and general paresis.

Dundas Grant.

Keppler, Wilhelm (Bonn).—*The Treatment of Purulent Otitis by Congestive Hyperæmia.* “Arch. of Otol.” vol. xxxv, No. 4.

In a series of acute cases recovery took place under this treatment with, in some instances, a small incision over the mastoid process. Paracentesis of the membrane was performed when required. In chronic cases the effects, though as a rule beneficial, were not so marked as in the acute, and the author considers it questionable whether we should advise further trials of the procedure in chronic cases.

Dundas Grant.

Koerner, O. (Rostock).—*The Nature of Oto-sclerosis in the Light of Heredity.* “Arch. of Otol.”, vol. xxxv, No. 5.

Koerner, along with Hammerschlag, has found from the examination of family trees that oto-sclerosis is undoubtedly hereditary, and even when it appears not to be so it is on account of the skipping of a generation. In forty-three cases there were only seven in which heredity was apparently absent: in seventeen the affection was in the second generation, in twelve in the third, and in seven in the fourth; the inheritance from the father extended to the son five times, and to the daughter five times, while from the mother it extended to the son and daughter nine times each; from father and mother to son twice, and from father and mother to daughter five times. In the light of the laws of biological heredity it is supposed that diseases cannot be inherited, and oto-sclerosis is, therefore, to be looked upon less as a disease than as an abnormal post-embryonal development. There is no evidence of its being syphilitic. The inference as regards prophylaxis is that we should advise persons suffering from oto-sclerosis not to marry, this advice being the more important in the female descendants of one suffering from oto-sclerosis who are not deaf, because every pregnancy is apt to excite the latent determinant into action. [This view was advocated by Dr. Milligan before the Otological Society.]

Dundas Grant.

Hoelscher (Ulm).—*Report of Four Fatal Cases after Purulent Otitis.* “Arch. of Otol.”, vol. xxxv, No. 4.

In one there was extra-dural abscess, which in turn produced disease in the temporal lobe. In the second, purulent lepto-meningitis with internal hydrocephalus. In the third, thrombo-phlebitis of the sigmoid sinus and beginning meningitis over the temporal lobe, death resulting from heart failure from septic pyæmia. In the fourth, death occurred from a septico-pyæmia, possibly originating from a middle-ear suppuration; no paracentesis had been performed; there was tenderness of all the joints and swelling and reddening of the dorsum of the feet; there was a thrombus in the left lateral sinus extending into the jugular foramen, yellowish pus, necrosed dura and roughened bone at the point of contact.

Dundas Grant.

Freidmann, C.—*On Objective Tinnitus.* “Arch. of Otol.”, vol. xxxv, No. 4.

A rhythmic uniform noise of a crepitant character of the frequency of 100-120 per minute was heard at a short distance from either ear of a child. The diagnosis was made of chronic spasm of the tensor palati muscle on both sides. A case of Brieger's is quoted in which “a manometric variation was observed in the external auditory canal simultaneous with the noise, and a fluid reflex could be observed in the tubal opening of the pharynx.” The noise was arrested for a short time after division of the tendon of the tensor tympani, and then was louder than ever, and distinct spasms of the soft palate could be observed. The noise is probably always due to the tensor palati, and sometimes to the tensor tympani in addition. In these cases a peculiar intermittence of the symptoms has been noted; in some they could be voluntarily influenced by the patient,

though in no case was it possible to permanently arrest the noise; moreover, it seems possible for healthy persons to produce a similar noise. In most of the cases the patients have been nervous after general illness or disease of the ear. The treatment should be that for nervousness and hysteria.

Dundas Grant.

Boenninghaus (Breslau).—*A Case of Bilateral Cerebral Disturbance of Hearing with Aphasia.* “Arch. of Otol.,” vol. xxxv, No. 6.

The patient, aged forty-five, was suddenly taken ill with a peculiar sensation in his body as if the ground were swaying; he was then totally deaf and did not perceive even the loudest sound. In addition he had lost the power of speech and was evidently the subject of apoplexy of the hearing and speech centres. The hearing began to improve after two months. The tone series then was not heard on the right side below B, but up to a' on the left; the upper part was heard by both ears without any defects; bone conduction was lost. He had no understanding for music, but the intellect was well preserved. The difficulty in the case was to account for total deafness lasting two months in both ears after an apoplexy in the left temporal lobe. The explanation was, however, that five years previously he had suffered from a stroke of apoplexy, when the left half of the body was completely paralysed for two hours; there was, therefore, focal disease of both temporal lobes and of both auditory tracts.

Dundas Grant.

Vail, D. G. (Cincinnati).—*Herpes Zoster Auris.* “Boston Med. and Surg. Journ.,” January 10, 1907.

The pain which occurred in this case is described as “terrific.” The herpes occurred over the mastoid region.

Macleod Yearsley.

Rawling, L. B.—*A Case of Cerebellar Abscess; Evacuation; Recovery.* “Brit. Med. Journ.,” March 9, 1907.

The patient, a male, aged twenty-one, admitted to hospital with a history of purulent discharge from the left middle ear of four months' duration. The main symptoms were marked optic neuritis, slow pulse, mental lethargy, and marked leucocytosis of 20,000. The temporo-sphenoidal lobe was explored with negative results. A few days after the cerebellum was explored, and an abscess containing 1 oz. of greenish pus evacuated.

During the operation the patient three times stopped breathing, and artificial respiration had to be resorted to. A complete recovery ensued.

W. Milligan.

Lermoyez, M.—*Noises in the Ear and Dechlorization.* “La Presse Otolaryngologique Belge,” July, 1906.

Basing his remarks upon a case of entotic tinnitus due to muscular spasm, in an old man, which he cured by this method, the author advises the restriction of the amount of chloride of sodium taken with the food in such cases. He considers that this substance acts as a veritable poison in provoking muscular spasm.

Chichele Nourse.

THERAPEUTICS.

Pratt, Charles M.—*Cocaine.* “Maritime Medical News,” August, 1906.

This article treats of the drug, its origin, how it came into use, the uses to which it has been applied, and the existence and danger of the cocaine habit.

Among other items, special spinal cocainisation is referred to, and the frequency with which it has been used by this method for anaesthesia during major operations.

The writer thinks that it is highly probable that spinal anaesthesia by the use of cocaine will be widely practised in the surgery of the future.

Price-Brown.

Raoult, A., and Pillement, P. (Nancy).—*Some Notes on the Use of Alypin.* “Archives Inter. de Laryngologie, d’Otologie,” etc., September—October, 1906.

Among the many substitutes for cocaine which have appeared in the last few years alypin presents several points of interest. It is a white, crystalline powder, very soluble in water. Its anaesthetic power is almost, if not quite, equal to that of cocaine, and gives excellent results in nasal cauterisations. The anaesthetic effect is complete in three minutes, and lasts for a considerable time. Congestion may be avoided by adding a drop or two of adrenalin. It does not retract the mucous membrane, and the secondary haemorrhage is less than with cocaine. In throat work alypin is useful for slight cauterisations, but cocaine is better for cutting operations. There are no toxic effects, no acceleration of the pulse, paleness, perspiration, or coldness of extremities.

Anthony McCall.

Harland, W. G. B. (Philadelphia).—*Report of a Case in which Disagreeable Symptoms followed the Local Use of Cocaine, Adrenalin Chloride and Argyrol.* The “Therapeutic Gazette,” October 15, 1906.

The patient was a lady under middle age. She had long been under treatment for a lithæmic condition of the throat and nose, and on the day in question came to the author to have some nasal pressure symptoms relieved. The nose was sprayed with an alkaline solution, a little 4 per cent. cocaine with 1 in 1000 adrenalin applied to the lower turbinals, and the latter touched with glycerite of tannic acid and 25 per cent. argyrol. Finally, a menthol-albolene nebula was used. The method had often been used before. It was immediately followed by blocking of the nose, heat and dryness of the throat, fulness and roaring in the ears, suffusion of the eyes, redness and swelling of the hands. Twenty minutes later itching, commencing in the head and extending downwards, ceasing above as it spread below, came on. The pupils were dilated, accommodation preserved, pulse rapid and weak. In forty minutes the symptoms abated, and twenty minutes later she could walk home.

The author cites a similar case reported by Burnett (“International Clinics,” 1902) following the use of a 1 in 1000 adrenalin chloride nasal spray.

Macleod Yearsley.

REVIEW.

Précis de Laryngologie Clinique et Thérapeutique. By Dr. P. LACROIX. Pp. 628. 182 figures in text. F. R. de Rudeval, 4, Rue Antoine Dubois, Paris, 1906.

In spite of the many facilities afforded for the study of diseases of the throat, it appears that there has not been published in France a work on laryngology, at the same time elementary and sufficiently complete for the *débutant*, the student, and the practitioner. Dr. P. Lacroix aims at filling that gap in his "Précis de Laryngologie."

The work consists of four parts: the first is devoted to the general technique of the methods of examination (pharyngoscopy, laryngoscopy, tracheoscopy, bronchoscopy), of diagnosis, and of treatment in laryngology. The second part deals with the pathology of the pharynx, and the third with that of the larynx and the subglottic region. In the fourth part, entitled "Syndromes Laryngiens," the author discusses the symptomatology, such as laryngeal dyspnoea, haemoptysis, dysphagia, affections of the voice. It is, in a word, the clinical synthesis of the two preceding chapters.

The text is well illustrated with numerous and instructive figures representing the more important pathological lesions and operative measures. Dr. Lacroix's *précis* forms a practical, simple, and complete guide to laryngoscopy.

SURGICAL INSTRUMENTS AND THERAPEUTIC PREPARATIONS.

MESSRS. MAYER & MELTZER, 71, Great Portland Street, London, W.

With the growth of surgery there has been a corresponding increase in the size of surgical instrument makers' catalogues, so that reference to one daily calls for a greater effort. Messrs. Mayer and Meltzer are to be congratulated on having produced a handy volume devoted entirely to instruments required in the diagnosis and treatment of diseases of the throat, nose and ear. In at least one standard text-book of these diseases the author omits all illustrations of instruments, and states as his reason for so doing that they are to be found in instrument-makers' catalogues. Without admitting that in all cases such a course is to be commended, in view of the great help such illustrations can afford the intending purchaser, there seems some justification of it when we inspect such a catalogue of instruments used in the practice of laryngology, rhinology and otology, as is issued by Messrs. Mayer and Meltzer, of London. This publication will be found useful to any student of the subjects, and the practitioner will find it well worth keeping by him. Among other instruments are found all the newest ones for submucous septum resection, for oesophagoscopy and bronchoscopy installation, paraffin syringes of the newest type, and the various requirements for

aseptic operation of all kinds. Instruments for the grafting operation and inventions and modifications of various instruments by well-known British and foreign specialists are freely and clearly depicted.

We are informed that the instruments, almost without exception, are made in the firm's London factory. It is a pleasure to note that our English makers are holding their own against continental competition, and those who know the value of reliable and well-made instruments will regard the prices as consistent with the attention to detail and the good workmanship for which the firm is noted.

MESSRS. PARKE DAVIS AND CO., 111, Queen Victoria Street, E.C.

The "Glaseptic" *Nebuliser* and the "Glaseptic" *Spray* possess the desirable features of simplicity of construction, and therefore of manipulation, there being no separation of parts necessary for charging them, and they ensure absolute freedom from metallic contamination or oxidation of the inhalation fluid. The *Nebuliser* produces an extremely fine nebula with solutions having an oily base, and is also available for aqueous or alcoholic solutions. The *Spray*, which has been quite recently introduced, gives a spray of less finely divided character than that of the *Nebuliser*. While primarily intended for the topical application of aqueous or alcoholic solutions, it may be used with oils of a light specific gravity. The fluid is introduced through a small neck which is closed with a cork stopper. Both the *Nebuliser* and the *Spray* are supplied either plain or graduated. The pneumatic apparatus is of the best quality English-made red rubber. According as a fine cloud (almost invisible) or a more copious delivery is required, the "Glaseptic" *Nebuliser* or the "Glaseptic" *Spray* will be found the best available means for its production. Care is necessary to differentiate between the two and to correctly employ the respective titles.

Iodalbin.—Iodalbin is an iodo-proteid compound, containing 21.5 per cent. of iodine. It is in the form of an almost tasteless powder, insoluble in water, acids, or alcohol, but readily soluble in alkaline solutions. When administered it passes unchanged through the stomach and is gradually absorbed in the intestine, thus avoiding the gastric irritation that the alkaline iodides are liable to excite, and also ensuring a milder systemic effect. Experiments on animals show the presence of iodine in the saliva very shortly after its administration, but very little can be traced in the faeces. Several months of close clinical observation demonstrate that iodalbin produces the typical alterative effect of the inorganic iodides without their disadvantages. Iodalbin may therefore be advantageously prescribed in preference to the alkaline iodides in all cases where such treatment is indicated. A smaller dose, five to ten grains, is sufficient, though many patients have taken as much as sixty grains *per diem* without untoward effects.

Nutritive liquid peptone.—A palatable nutritious restorative presenting prime beef reduced to bitterless peptone by means of bromelin—the proteid-digesting ferment of pineapple juice—in association with extract of malt of high diastatic power. The combination is a true food in an easily assimilable form, allied with gently stimulating properties. In critical illnesses it may be relied upon to maintain nutrition for days, and in tuberculosis, anaemia, marasmus, and convalescence from debilitating diseases it is a valuable means of promoting nutrition. It is an

excellent means also of maintaining strength in lactation. The ordinary dose is from one to two table-spoonfuls.

Nutritive liquid peptone c. creosote.—This is nutritive liquid peptone with the addition of one minim and a quarter of beechwood creosote and three-quarter minim of guaiacol to each fluid ounce. These additions make for greater usefulness in gastric disorders, such as summer diarrhoea, flatulence, etc., providing aseptic treatment and non-irritating nutriment. In tuberculosis, phthisis, and chronic bronchitis its administration improves nutrition, stimulates appetite, and lessens cough. The dose is from one tea-spoonful to one table-spoonful.

BURROUGHS WELLCOME & Co., LONDON (Eng.), New York, Montreal,
Sydney, Capetown.

“Elixoid” Pine Tar Compound.—A pleasantly-flavoured fluid preparation, containing “Pinol,” tar, terpin hydrate, Virginian prune, balsam of Tolu, and ipecacuanha. This combination has been found very effective in the treatment of affections of the respiratory organs, as its active components are excreted by the lungs, and thus exert a slow, steady and continuous action. It allays pulmonary irritation, and is of special service in chronic bronchitis and bronchorrhœa. It soothes and relieves coughs, and may be used in cases in which the administration of preparations of opium is inadvisable. Dose: half to two fluid drachms three or four times a day, after meals, or small doses may be given more frequently.

THE

JOURNAL OF LARYNGOLOGY. RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

NOTES ON THE FREQUENCY OF MARKED HYPERTROPHY OF THE PHARYNGEAL EXTREMITIES OF THE EUSTACHIAN TUBES, WITH ANALYSIS OF FOURTEEN CASES.¹

By JAMES DONELAN, M.B., M.CH. (R.UNIV.I.),
Aural Surgeon to the Italian Hospital, London.

It is, perhaps, unnecessary to remind the Society that the first instance of which we have a record of marked hypertrophy of the pharyngeal extremity of the Eustachian tubes was the interesting case shown here last year by Dr. Furniss Potter. It had been exhibited by him several months previously at the Laryngological Society, and on that occasion I expressed the opinion that the condition was a comparatively common one, and that while it was one of the commonest causes of error in the diagnosis of nasal obstruction from adenoids, it had been entirely overlooked in the literature. I was rather startled at the incredulity with which that view was received by most of those who took part in the discussion, and I began to think I had had a somewhat unique experience. However, when the case was shown here, the remarks of Dr. Edward Law, and of others who took part in the discussion, showed that the condition was one with which they were well acquainted. My recollection of the matter was revived during February by meeting a well-marked case in private practice occurring in a girl, aged nine, who had the characteristic adenoid appearance, chronic

¹ Communicated to the Otological Society of the United Kingdom, May 4, 1907.

hypertrophic rhinitis, and slight Eustachian deafness with intact membranes.

On looking through the cases of the Italian Hospital from the beginning of October, 1902, to now, I find the condition noted in fourteen cases. The ages of the patients varied from three to twenty-two years—ten males and four females. It may seem a very small number, but the interesting point is that ten of these cases had been sent for operation for adenoids by medical men accustomed to recognise the signs of naso-pharyngeal obstruction. In only four cases there were a few small adenoids, in the rest none. The hypertrophy in all cases was so marked as barely to allow the finger to pass between the swellings. In one case they extended forward to the pterygoid plates. There was double chronic suppurative otitis in one child, aged three, and unilateral suppuration in another, aged nine. In the latter the hypertrophy existed equally in the opposite side. In one case—a woman, aged twenty—there was ethmoidal suppuration and polypus on the left side, and in one ethmoidal suppuration on both sides. It is somewhat remarkable that no case was met with over twenty-two years of age. I have also seen a private case in which the abnormality was complicated with cleft palate, whereby an excellent view of the condition could be obtained. The condition associated with almost all the cases was general hypertrophic rhinitis, with a long history of catarrh; for instance, in the child of three the catarrh had lasted from birth. This is, of course, too small a group of cases on which to base an opinion as to the causation, or even the relative frequency, but, as far as they go, it would appear, as seems, indeed, most likely, that the condition is caused rather by disease of the naso-pharynx than of the tympanum, and that if otitis is present it is also a consequence.

If other members, with larger clinics, were to collect their cases, it might be possible to arrive at some conclusion. As regards treatment, I have not attempted any, though I have gathered, in conversation from some members of the Society, that they have, in one or two instances, removed these hypertrophies without any bad effect on the hearing.

			Age.	Remarks.
1902	Oct.	8	W. F—	5 Slight deafness R. and L.; no adenoids.
1903	Jan.	21	D. D—	11 No adenoids.
	Mar.	4	L. P—	19 Hypertrophy extended to pterygoid plates on both sides.

			Age.	Remarks.
1903	July 22	C. L—	14	Few adenoids.
	Sept. 22	R. Z—	5	No adenoids.
1904	April 20	E. B—	17	Marked hypertrophy; no deafness.
	June 15	M. A. C— (F.)	17	Few adenoids.
	Oct. 12	J. S—	14	No adenoids.
1905	Mar. 15	D. B— (F.)	20	Ethmoidal suppuration and polypus.
	Nov. 3	Isidore	3	Double suppurative otitis; no adenoids; deaf and dumb.
	Dec. 8	C. D—	22	Deafness.
1906	April 4	A. L—	4	A few adenoids.
	April 26	L. A—	9	R. ch. sup. otitis.
	May 3	C. B—	4	No adenoids.
1907	Jan. 1	E. H— (F.)	9	R. and L. ethmoidal disease; marked deafness.
	Feb. 26	B. T— (F.)	9	Slight deafness.

NOTE ON AN UNUSUALLY LARGE EXOSTOSIS OF THE EXTERNAL AUDITORY MEATUS.

By P. McBRIDE, M.D., C.M., F.R.C.P.EDIN., F.R.S.E., Consulting Surgeon, Ear and Throat Department, Royal Infirmary, Edinburgh.

The patient, now a woman aged thirty-three, was seen first eleven years ago. At that time she heard well with the right ear, but the canal was occupied by a large, hard tumour. She was seen again in May, 1904; the right ear was then deaf, the watch was not heard when pressed against the ear, and a low voice was only understood close to the ear. The meatus was filled with a large mass of osseous consistence; a probe could be passed in front, above and below it, but was stopped posteriorly; when withdrawn there was a disagreeable odour. There was also a history of attacks of inflammation.

On June 12 the patient was anaesthetised. An attempt was made to remove the growth by way of the meatus. With a gouge the smaller piece was removed. This required considerable force applied with a hammer. As, however, the whole tumour could not be got away in this way, the auricle was detached and the remainder of the mass removed. After detaching it from the bone a good deal of difficulty was experienced in extracting it. The meatus

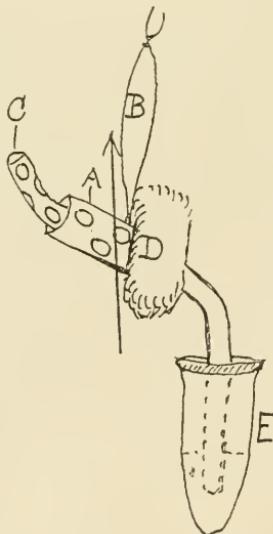
was found to be much enlarged and contained much cheesy, foetid matter. It could not be clearly made out what was the condition of the membrane.

The process of healing was uneventful. When last seen, in October of 1904, the membrane was found to be replaced by a cicatrix. Hearing was much improved by the operation, and the patient was able to repeat a whisper at eighteen feet. Size of growth: 4·8 by 2·4 by 1 cm. the large piece; 2·6 by 1·4 cm. the small piece.

A DEVICE FOUND EFFECTIVE IN SECURING CONTINUOUS DRAINAGE OF CEREBRAL ABSCESS.

By THOS. H. PINDER,
Surgeon to the Manchester Ear Hospital.

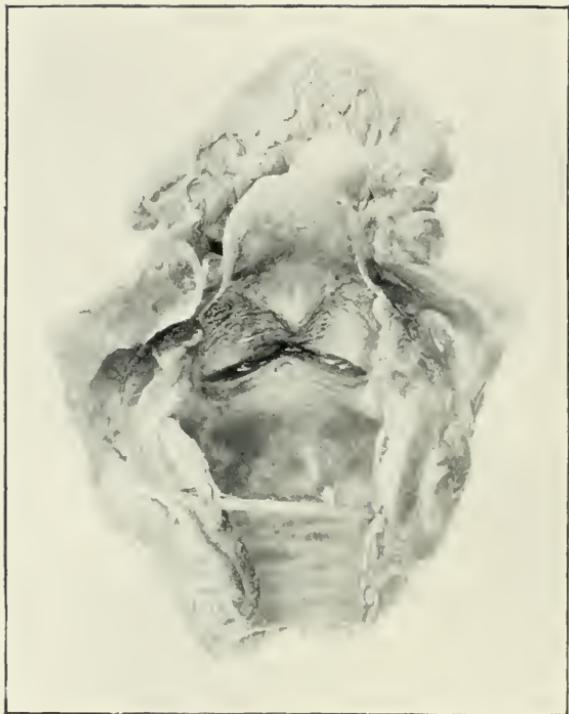
A.—A bit of No. 14 perforated rubber tubing, just long enough to reach the abscess cavity, secured by B, a horsehair loop, which



prevents the tube from displacement inwards and out of reach. Fix to the scalp by strip of plaster.

C.—A loosely fitting inner tube of No. 4 of the thinnest material procurable, and perforated with the largest possible openings. This should reach the deepest part of the abscess.

D.—A collar of oiled iodoform gauze, retaining in position the



CYSTOMA OF THE EPIGLOTTIS.

To illustrate Dr. JOBSON HORNE's communication to the Laryngological Society of London, January 4th, 1907. Vol. xiv, p. 32.

larger tube, which a dressing, as ordinarily applied, usually fails to do. Prepared by rolling the gauze fairly tight round a glass rod.

E.—A very soft rubber finger-stall containing boric acid powder to one quarter of its depth. In this lies the outer end of the smaller tube, insuring continuous drainage and materially preventing undue intra-cerebral pressure. A roll of Alembroth wadding, 1 by 4 inches, laid behind and parallel with tube E, prevents compression or displacement. An ordinary dressing is applied over all. The incision through the dura is made just wide enough to easily admit the larger tube, which may not need to be removed at each dressing, whilst the smaller tube, smeared with vaseline, glides easily and painlessly through it, and may be removed as often as may be thought needful. The diameter of the tubes may, of course, be varied so as to meet the requirements of each case. The vertical arrow indicates the outer surface of the dura mater. The tube C is perforated at the intra-cranial end only. Gentle irrigation may be necessary through one or other tube should the discharge continue foetid.

CYSTOMA OF THE EPIGLOTTIS.

BY W. JOBSON HORNE, M.D., B.C.CANTAB.,
Surgeon to the Metropolitan Ear, Nose, and Throat Hospital.

THE specimen shown in the accompanying plate is of remarkable rarity, and is, perhaps, unique in the preservation of its original state. True cystic tumours must be placed amongst the more unusual forms of neoplasms met with in the larynx. In Mackenzie's hundred tabulated cases of morbid growths of the larynx only two were of the true cystic variety. Partly owing to the relative infrequency of their occurrence, and partly owing to the diffusion and increase of a knowledge of laryngological technique, the opportunities for obtaining macroscopic specimens of the disease are accidental. A few years ago, in 1901, when I was collecting specimens for the loan museum formed in connection with the British Congress on Tuberculosis, I took the opportunity of examining all the specimens illustrating diseases of the larynx in the museums of the London hospitals; I met with only one of cystoma of the larynx, and that was in the Guy's Hospital Museum. This specimen, unfortunately, had been obtained and prepared in the *præ-formalin* days, and the cyst has suffered from the action of the spirit upon it. The photograph shows a specimen prepared by the formalin method,

and the tenseness and colour of the cyst are remarkably well preserved.

These cysts, when situated on the epiglottis, are commonly not brought under notice until they attain to a size which occasions a sense of choking, or dysphagia.

As regards treatment, puncturing them is of little avail, for they rapidly re-fill. Cutting out a portion of the cyst wall is equally ineffectual. Injecting them is undesirable. They can easily be removed. Removal by evulsion is untidy. The better way is by means of a wire snare. In using a snare in the larynx, one should always be prepared against the snare not cutting through sharply when drawn home tight. The plan I have adopted, and I may say with satisfactory results, is, after cocaineising the part, to pass the cold loop of a snare connected with an electric battery close round the base; the cold wire is then drawn tightly home, and at the finish the current is turned on and the growth is singed off, leaving only a white linear scar along the tip of the epiglottis just at the very site of attachment. The scar itself shortly disappears, with the result that there is no mutilation of the parts nor evidence left of the neoplasm.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

One Hundred and fourteenth Ordinary Meeting, May 3, 1907.

J. B. BALL, M.D., *President, in the Chair.*

HENRY J. DAVIS, M.B., }
W. JOBSON HORNE, M.D., } Hon. Secretaries.

Present—38 members and 4 visitors.

The minutes of the previous meeting were read and confirmed.

The following communications were made :

A POLYPOID GROWTH WITH DOUBLE PEDICLE REMOVED FROM THE TONSIL.

Shown by Dr. P. McBRIDE. The patient, when seen in May,

1905, had felt discomfort in swallowing for some time. A small white, lobulated tumour was seen attached to the right tonsil by a pedicle, which on examination was found to be double. It was removed with vulsellum and scissors. Afterwards it was seen that the points of attachment of the two pedicles were above and below a crypt.

TUMOURS OF THE VENTRICLE OF MORGAGNI.

Dr. JOBSON HORNE showed : (1) A macroscopic specimen demonstrating true prolapse of the mucous membrane lining the ventricle of Morgagni.

(2) A microscopic specimen cut vertically through the soft parts of one half of a larynx demonstrating a growth springing from the roof of the ventricle. Clinically it might have simulated a "prolapse" or might have been diagnosed as a fibroma of the ventricle ; it was really a hyperplasia consisting of structures similar to those of the ventricular band, so that it may be described as a supernumerary ventricular band.

(3) A macroscopic specimen of part of a tonsil showing an excrescence simulating a polypus. The excrescence was composed of tissue similar to the tonsil itself but presenting degenerative changes.

(4) A microscopic section of a "polypus" attached by a long pedicle to the base of the uvula. Under the microscope the structure was that of a true papilloma.

A CASE OF SUBACUTE LARYNGITIS WITH ULCERATION ; FOR DIAGNOSIS.

Shown by Dr. H. J. DAVIS. The patient, a man, aged twenty-nine, had been hoarse for three months ; there was subacute laryngitis with a small ulcer on the right ventricular band. No history of syphilis, though the palate was perforated. There was some impairment at the right apex ; the condition was painless.

Dr. DAVIS said he desired opinions as to whether the case was syphilis or tubercle, or a simple subacute laryngitis.

Mr. CRESSWELL BABER said he could not see any ulcer on the right ventricular band ; probably it had disappeared under the influence of the iodide of potassium. There was a slight excavation on the right cord. He thought the case was probably syphilitic.

Mr. P. R. DE SANTI thought it was of specific origin, and he would favour hypodermic injections of calomel to try and reduce the condition. The state of the palate was very suggestive of specific trouble.

Dr. McBRIDE asked whether the sputum was examined ; the case as

it stood now must be either tubercle or syphilis in an early stage. The eaten-out appearance of the anterior part of the right cord looked more like tubercle than syphilis, although the perforation of the palate was rather difficult to account for on that hypothesis.

Dr. Wm. HILL suggested inunctions of mercury over the larynx. He had occasionally seen iodide of potassium cause a good deal of trouble over the larynx, especially producing submucous swelling. The fact that the laryngitis disappeared under iodide did not exclude syphilis. But, in view of the perforation of the palate he would go on with the mercury.

Dr. STCLAIR THOMSON suggested that it was tubercle in a syphilitic subject. Dr. McBride had alluded to the waxy condition and the loss of substance of the right vocal cord, which could not be late tertiary, but it was like the nibbled condition seen in early tubercle. The patient said he had lost more than eight pounds in weight during the last five months, and his general health was poor. If he were treated too vigorously for his syphilis, it might bring out his tubercle, whereas if he were treated for his tubercle his syphilis would probably get well of itself. Open-air treatment was well known to improve syphilitics.

The PRESIDENT said it was a difficult case, but Dr. StClair Thomson's view seemed a very likely one. It would be interesting to have a later report of the case.

A CASE OF A GROWTH ON THE LEFT VOCAL CORD IN A WOMAN, AGED TWENTY-NINE; (?) MYXOMA.

Shown by Mr. DE SANTI. This patient complained of hoarseness of varying degree, and cough of three to four years' duration. On examination of the larynx a sessile growth was seen to occupy the anterior half of the left vocal cord. It appeared to grow from the edge of the cord and looked like a gelatinous nasal polypus. It was fairly firm to the probe. On the opposite cord was a small red eminence apparently produced by irritative attrition by the growth on the left cord. Mr. de Santi thought the condition probably myxomatous in nature, and proposed to remove the growth by endolaryngeal methods.

Dr. DUNDAS GRANT thought it was an oedematous fibroma, and that a very excellent result would follow its removal.

Dr. HILL asked Mr. de Santi to bring the specimen forward if it turned out to be myxoma, as that was one of the rarest tumours of the body.

Dr. MCBRIDE said there seemed to be a small growth of similar kind on the opposite cord. Years ago he had a case of infiltrating myxoma, which was the pathologist's verdict. It seemed to have all the characteristics of a malignant tumour. The case was obviously rather urgent. He removed a piece for microscopical examination, and asked the pathologist to report quickly. The report was that it was epithelioma. Half the larynx was excised, then the pathologist reconsidered the matter, prepared the tissue carefully, and found he had cut the section diagonally, and so got the semblance of epithelioma. It turned out to be a true infiltrating myxoma—not merely oedematous connective tissue.

Dr. STCLAIR THOMSON said that years ago the Society had a discussion on myxoma of the vocal cord, and he, Dr. Bond, and another member showed what they considered to be myxoma. Yet Morell Mackenzie, in his book, said he had seen only one. The three specimens were submitted to the Morbid Growths Committee, on which Dr. Kanthack's help was available. It was decided that none of the three was true myxoma, but were oedematous fibromata. At the discussion it was concluded that there was no such thing as myxoma in the larynx, the idea being that what was called myxoma was always simply an oedematous condition of fibroma, or simply inflammatory tissue.

Dr. JOBSON HORNE said there seemed some confusion as to the precise terminology of the case. He thought many such cases were really instances of cystic disease of the vocal cord, the outcome of epithelial cells having undergone degenerative changes. He thought that the terms "oedematous fibroma" and "myxoma" were both unsuitable.

A MICROSCOPIC SECTION OF A LARYNX SHOWING A TONGUE OF THE MUCOUS MEMBRANE OF THE VENTRICLE.

Shown by Dr. WYATT WINGRAVE. Section of larynx (coronal) showing a peninsulated projection in the interior of the ventricle. The "tongue" is attached to the outer wall and is apparently normal mucous membrane covered with columnar epithelium. It is one of four normal larynges cut for anatomical purposes, and is shown with the suggestion that it may help to throw some light upon the condition known as "eversion" or "prolapse of the ventricle."

A CURVED KNIFE FOR THE ENUCLEATION OF ENLARGED TONSILS.

Shown by Dr. A. BRONNER. The tonsil is pulled forward by vulsellum forceps, and then quickly cut off by the knife. The bent part is pressed well back between the pillars of the fauces, and thus practically the whole of the tonsil can be removed quite as completely as by enucleation by the finger, much more quickly and with much less haemorrhage and danger to the patient. If not carefully done there is a possibility of wounding one or both of the pillars of the fauces, but with a little experience this can be avoided. If the pillars are attached to the tonsil they should be loosened before the tonsil is excised. This can easily be done with the end of the knife. It is double-edged, so that it can be used for either tonsil. Of course it is not suitable for every case. When the tonsil is soft or very flat so that it cannot be pulled forward, the punch forceps should be used, or the tonsil slit open with a sharp strabismus hook. The knife is made by Mayer and Meltzer, of Great Portland Street, W.

CASE OF LARYNGEAL SYPHILIS SHOWN ON JANUARY 4, 1907.

Shown by Dr. J. B. BALL. When this patient was shown at the January meeting there was some difference of opinion as to the nature of the case, although the history of several stillborn children pointed to the probability of syphilis. There was an œdematosus swelling of the left vocal cord, and some subglottic swelling on both sides, but more especially on the left side. There was fairly marked laryngeal dyspnea present. A few days subsequent to the meeting tracheotomy was performed, and she was put on potassium iodide in full doses. The next day a profuse, foetid, purulent discharge came from the tracheotomy wound, and some days later a probe passed upwards towards the cricoid came on necrosed cartilage. Two pieces of necrosed cartilage were removed subsequently through the tracheotomy wound. At the end of the fourth week, as the laryngeal stenosis seemed to be sufficiently relieved, and there was no more necrosed cartilage to be made out, the tracheotomy wound was allowed to close. At present the parts about the glottis are much altered in appearance. The voice is reduced to a gruff whisper, and there is a certain amount of dyspnoea on any exertion. Below the glottis, on the left side, a whitish projection is to be seen, which, it is thought, may be a fragment of necrosed cartilage.

The PRESIDENT said he showed the case in January also, and the point now was what the whitish prominent point below the left vocal cord was: was it a fragment of cartilage? Some pieces were removed through the tracheotomy wound, and when he allowed the wound to close he could not be certain that they had been entirely removed.

Dr. FITZGERALD POWELL said this was a most interesting case, and one would have to be well conversant with the history and former appearance of the condition to say what the nature of the case was: from its present appearance nothing definite could be said as to the diagnosis. With regard to the white patch seen below the cords, he thought it was a piece of necrosed cartilage. In a case of his of syphilitic stenosis of the larynx, in which a tracheotomy had been done, a small, white mass was observed below the cords, and above the tube it was difficult to say what it was, but on an operation being performed (removal of the right half of the larynx) to enable the patient to dispense with the tracheotomy tube, the mass was found to be a portion of necrosed cartilage.

A CASE OF ROUND-CELLED SARCOMA OF THE NASO-PHARYNX.

Shown by Dr. FITZGERALD POWELL. The patient, a man, aged thirty-eight, came under observation first in December, 1906, complaining of nasal obstruction and epistaxis; the obstruction was of

six months' duration. He had been treated at Oxford in October, 1906, for nasal polypi.

On examination his general health was found to be good. There was an irregular, reddish mass extending from the right choana and basisphenoid, along the right side of the naso-pharynx to the level of the tonsil, filling up the right choana, and involving the right Eustachian cushion, deeply infiltrating the soft tissues of the naso-pharynx, causing the soft palate to bulge. The jaw was fixed. A considerable number of mucous polypi were found in the nose. A portion of the growth was removed, and the report of the pathologist was that it was a "round-celled sarcoma."

It was rather doubtful whether an operation could be done to entirely remove the disease, but the patient very urgently expressed the desire to have an operation. In consequence I thought it right to make an effort to relieve him. On January 12 he was placed under an anaesthetic. A temporary, loose ligature was placed round the common carotid and a laryngotomy was performed, through which the anaesthesia was continued. His mouth was gagged wide open, and the pharynx plugged with sponges. The soft palate was split, and a portion of the hard palate removed with a chisel and mallet. A free incision was made as wide of the growth as possible, and it was dissected out, everything at all like growth being taken away, part of the septum, which was involved, being cut away.

The man made a good recovery. One or two curettings have been done since for the removal of suspicious-looking granulations.

MR. DE SANTI said there was undoubtedly considerable recurrence in the case, and he did not think that at any time the whole of the disease had been taken away. There were portions of growth in the posterior part of the nose, which apparently had extended from the base of the skull, and it would now be better to leave the case alone. Operation undertaken in that locality for extensive sarcoma required more done than at first appeared. In such cases, not only had the palate to be chiselled away, but also part of the base of the skull; and in some cases it was necessary to turn both upper jaws forward, which was a formidable operation. He did not think the whole of the growth could now be got away. He did not know why Dr. Powell put a ligature round the common carotid; he would have thought it better to have ligatured the external carotid. He was perfectly sure of one thing—namely, that imperfect and frequent curettings did not prolong life; on the contrary, they sometimes hastened death.

MR. HERBERT TILLEY differed from Mr. de Santi in no further operation being desirable in the case. Five years ago he, Mr. Tilley showed specimens from five operations on one patient, who had recurrences of a large fibro-sarcomatous growth in the naso-pharynx. The patient was now well, the growth having ceased to recur as the separate recurrences

were removed. Since then he had seen two other cases. One had a sarcoma removed from the posterior outer wall of the left nasal fossa, and that had recurred three times. At the third recurrence, instead of approaching it from below through the palate, he made an incision as if for removal of the upper jaw, and removed the ascending process of the superior maxilla, at the same time making an opening into the antrum. By removing the whole ascending process he came on to the outer nasal wall, and removed the recurrent growth. That was fourteen months ago. He saw the patient three weeks ago, and there was no further recurrence. He did the same thing a fortnight ago in a case of epithelioma limited to the ethmoidal region, and it was surprising what excellent room and view it gave the operator, and the growth was rendered very accessible. It was an easier method than splitting the palate, and did not disturb one's knowledge of the topography of the parts. The haemorrhage in such cases was very free (vascular fibromata, or fibro-sarcomata), and it was necessary to perform a preliminary laryngotomy, and to place a sponge above the larynx to avoid being inconvenienced by the anæsthetist, and to prevent blood getting into the larynx. He would not give up the case, but would attack the recurrences, as it was pointed out by Mr. Spencer a few years ago that those growths, though histologically malignant, were not clinically so malignant as when they occurred in other parts of the body. He thought Dr. Powell might still prevent his case from going downhill.

Mr. STUART-LAW agreed that by the method advocated by Mr. Tilley the access obtained was most efficient. He had such a case, in which the patient did very well. Last week he assisted Dr. Grant in a very extensive operation, where there was epithelioma of the antrum extending far backwards and upwards. The upper jaw was removed, and the access thus obtained was exceedingly good.

Dr. H. J. DAVIS thought there was considerable disease in the nose itself, and it seemed to have spread to the anterior part of the nose.

Dr. PEGLER said he had had a similar case under observation in which the disease had spread into the nose, and in which, on two occasions, a serious operation had been undertaken and as much of the growth as possible removed. The patient turned up again at the hospital eighteen months ago with complete nasal obstruction. He failed to come again for operation, obviously because he had his living to earn, and he did not appear to be in bad general health. Dr. Pegler doubted whether further attempts at removal should be made in the present case. Such sections of this class of growth as he had been able to examine had not a definite sarcomatous structure. The section now under the microscope did not seem to represent the main mass of the growth very well; it was not sarcomatous.

Dr. JOBSON HORNE said it was necessary to make sure whether sarcoma was being dealt with or not. As Dr. Pegler had said, the section was not sarcoma, and if Dr. Powell agreed to refer the case to the Morbid Growths Committee he would perhaps supply another section. He believed that the case of five years ago, referred to by Mr. Tilley, proved to be other than sarcoma. Sarcoma of the naso-pharynx was not so frequent as the literature led one to believe.

Dr. FITZGERALD POWELL, in reply, said he was grateful for the interest his case had aroused in the Society. In reply to the remarks of Mr. de Santi he did not think Mr. de Santi was quite in a position to give very decided opinions on the case, as it would have been necessary for him to have seen the case before and at the time of operation to be at

all able to judge of the procedure. The case was thought to be practically hopeless, but at the urgent desire of the patient he decided to operate. He selected the operation—a modification of Nelaton's—splitting the palate, and with the head hanging down over the end of the table on account of the tendency of the infiltrating growth to grow down towards the tonsil and palate, and not so much into the nose, the maxillary antrum also being quite free from growth, and he had found this method answer very well in the removal of large fibrous growths of the post-nasal space; besides, the face was not disfigured. He did not think there was much recurrence of the sarcoma in the nose—what was there appeared to be myxomatous. There was, he thought, some recurrence at the basi-sphenoid seen up behind the hard palate. He had removed all the growth he could possibly see or feel. It was very soft and infiltrating, and could not be got away as one complete tumour. With regard to the remarks regarding the section shown, several sections had been cut of the growth and also of the contents of the nose; he regretted he had unfortunately had the wrong section sent him, which was probably that of a polypus. He would obtain all the sections and submit them later.

DRAWING OF A TONSIL, SHOWING A BIFID GROWTH SPRINGING FROM A LACUNA. UNDER THE MICROSCOPE FOUND TO BE COMPOSED OF ORDINARY TONSILLAR TISSUE.

Dr. STCLAIR THOMSON brought forward this drawing and specimen, after seeing the cases of Dr McBride and Dr. Horne on the programme. The growth from the tonsil in his case had the clinical appearance of a polypus, and he had expected to find that it was a papilloma. As in the case of Dr. Horne the microscope showed it to consist of only tonsillar tissue.

CASE OF LUPUS OF THE LARYNX IN A BOY, AGED ABOUT TWELVE.

Shown by Dr. DUNDAS GRANT. Outgrowths above the vocal cords concealing them almost completely. Extreme weakness of voice. Question as to how far this is due to mechanical interference on the part of the outgrowth or how far to possible destruction of the hidden vocal cords. Is the present voice produced by the glottis or above it?

The appearance of the epiglottis is extremely characteristic, and there will probably be no difference of opinion as to the nature of the disease, more especially in view of the fact that there is, on the right forearm, the remains of a lupoid ulcer.

Mr. HERBERT TILLEY said he thought he could see the posterior ends of vocal cords.

Dr. GRANT said he would like opinions as to what the rest of the vocal cord was like, and why the patient had not a better voice. Ought he to remove the small lupoid outshoots above the vocal cords, and, if so,

would he be taking away the tissues used vicariously by the boy for producing his voice?

Dr. DAVIS thought that, as it was unhealthy tissue, the sooner it was removed the better.

Dr. WATSON WILLIAMS said the condition on the right side of the nose was rather suggestive of lupus, and he suggested there should be active treatment in that region as well as in the larynx.

Dr. JOBSON HORNE considered that the growths should certainly be removed, which could be done by the endo-laryngeal method. His belief was that the tissue in question was not essential for the production of the boy's voice, in fact, his voice would be improved by its removal.

CASE OF ENDOTHELIOMATOUS INFILTRATION AND ULCERATION ON THE POSTERIOR WALL OF THE LOWER PHARYNX IN AN ELDERLY MAN.

Shown by Dr. DUNDAS GRANT. Moderate interference with swallowing. Microscopical section shows typical endothelioma. General condition good; no glandular enlargement. The approximation of the downward continuation of the posterior pillars of the fauces suggested a tertiary lesion, but the extreme induration (noted particularly by Mr. Stuart-Low), the negative effect of anti-syphilitic treatment and the microscopical report seem conclusive. Question as to feasibility of operation.

Dr. GRANT asked for opinion as to whether operation would be feasible; also whether the microscopical aspects showed it to be malignant in character or only semi-malignant. He would be glad to submit the specimen to the Morbid Growths Committee, but the question of operation could not long remain undecided.

Dr. PEGLER said he had no doubt about the malignancy of the specimen under the microscope, but he would require to examine it more carefully before pronouncing it to be an endothelioma. He supported the proposal to submit it to the Morbid Growths Committee.

MICROSCOPICAL SECTION OF A GROWTH REMOVED FROM THE LARYNX.

Shown by H. LAMBERT LACK. The patient, a clergyman, aged fifty-four, had been hoarse nine months. The growth involved the anterior half of the right cord and spread slightly across the anterior commissure on to the left. It was removed by thyrotomy. The sections show that the growth is a spindle-celled sarcoma. The growth had a warty appearance, was sessile and infiltrating. The right cord was immobile. It was considered to be an epithelioma.

SPECIMENS OF PAPILLOMATA REMOVED FROM A LARYNX.

Shown by Mr. HERBERT TILLEY.

Dr. JOBSON HORNE spoke in favour of the direct method of removing

laryngeal papillomata in children as advocated by Dr. Paterson. With the forceps devised by Dr. Paterson it was necessary to make a considerable allowance for the kick upon closing the instrument, and with it there was difficulty in clearing out the anterior commissure—the part which the operator particularly wished to reach. With a view of overcoming these difficulties, Dr. Horne had had an instrument made by Messrs. Mayer and Meltzer, and this he would be pleased to demonstrate at the next meeting.

Dr. STCLAIR THOMSON said that he also had invented an instrument, which he would bring. It left the eye open to see along the gunwale. For the last two years he had been removing such papillomata by the Killian method. But he did not find them soft to pull away, but remarkably tough, nor did he find it so easy to get "all away," as did Mr. Tilley. At the last meeting Mr. Robinson showed a specimen of papilloma of the larynx, all of which it would have been impossible to take away except by flaying the larynx, as the growths were spread over the ary-epiglottic folds on both sides, the vocal cords, the ventricular side of the epiglottis, and below the cords. He had been disappointed to find that the growths recurred when removed by the Killian method, as by any other.

Dr. D. R. PATERSON said there were various sizes in which the forceps could be used. He had had one made in which the end was very narrow, and which could be got into any commissure. He agreed with Dr. Thomson's remarks as to the toughness of some of the growths, especially if they were sessile. Straight forceps would not grasp them, and he had found it necessary to use Löri's curette, which he had modified to use with a Killian tube. Various sizes were made, and they were especially useful in removing small pieces of growth from below the anterior commissure.

Mr. HERBERT TILLEY, in reply, said Dr. StClair Thomson must have misunderstood him, as he knew full well the difficulty of being sure that the whole of the growths had been removed. He meant to say that one was more certain of removing growths by the direct than by the indirect method. If the growths were fairly limited, probably all of them could be got away. He maintained that papillomata themselves were not so tough as Dr. Thomson and Dr. Paterson thought. When the forceps were fixed, and the growth would not come away, it was because they grasped not only the papilloma but also the tissue from which it was growing. The papilloma was a collection of "sprays" of epithelial cells supported on a fibro-vascular stem, and was quite soft. Last Wednesday he had a demonstration of that, because at the commencement of the operation he could see the growths and pick them off, but towards the end of the operation he had great difficulty in doing so when he endeavoured to get away the bases of the growths. He would be examining the larynx again next week, and would then apply a solution of salicylic acid in absolute alcohol to the growths.

Dr. WATSON WILLIAMS exhibited a Sphenoidal Sinus Syringe.

CORRIGENDUM.

In May number, page 211, eleventh line from top, for "aphonia" read "aphasia."

PROCEEDINGS OF THE OTOLOGICAL SOCIETY OF
THE UNITED KINGDOM.

*Thirty-first Ordinary Meeting, held at No. 11, Chandos Street, Cavendish Square, W.,
on Saturday, May 4, 1907.*

The President, A. E. CUMBERBATCH, F.R.C.S., in the Chair.

The following communications were made :

THE INFANTILE TYPES OF MASTOID, WITH NINETY-SIX SPECIMENS.

BY ARTHUR H. CHEATLE.

At birth and in infancy the outer antral wall, formed by the squama, is composed of a thin outer layer of compact bone and an inner layer of fine cells. The mastoid mass, formed by the petrons, is, as a rule, diploëtic, and separating the mass of diploë from the cavity of the antrum there is frequently a thin, but distinct, layer of compact bone (Fig. 1). The mastoid diploë may be scraped away, leaving the separating layer.

These conditions frequently persist all through life, though on an enlarged scale, forming one of the types which I have called "infantile." The outer antral wall becomes much thickened, and of ivory density, but the inner layer of fine cells remains distinct. The dense squamous part of the mastoid process is often sharply marked off from the petrous part. The mastoid process is still diploëtic, and the separating layer of compact bone is much increased in thickness. No mastoid cells form (Figs. 2, 3, 4). Very rarely the mastoid mass in infancy is formed of very dense bone, with little or no diploë (Fig. 5), and this condition may persist, forming a second type of "infantile mastoid" (Fig. 6).

These ninety-six specimens have been picked out from a collection of 500 normal bones.

The importance of recognising that these types exist so frequently is of much surgical importance, for : (1) Suppuration is unable to reach the mastoid process or to perforate the outer antral wall ; (2) the external signs of acute empyema of the antrum may be absent or slight ; (3) extension of infection is more likely to extend intra-cranially or to the labyrinth. The posterior wall of the antrum is sometimes very thin and translucent, and has the cerebellum or the lateral sinns or both lying against it ; (4)

PLATE I.

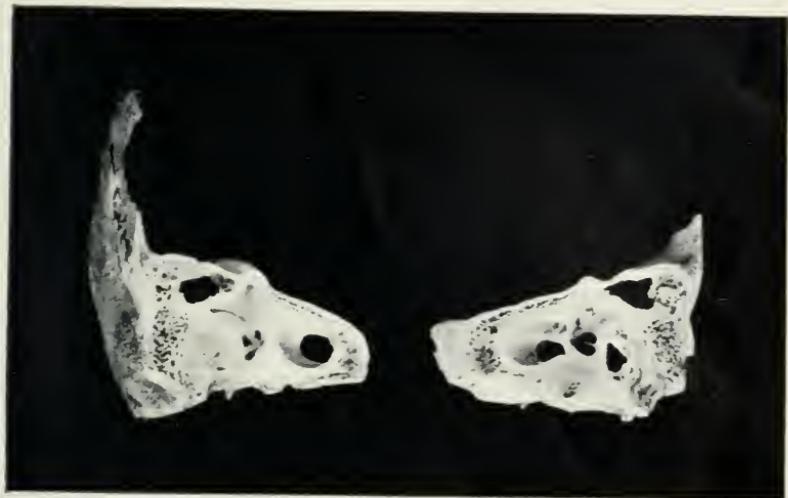


FIG. 1.—RIGHT BONE OF A MALE AGED NINE MONTHS.



FIG. 2.—RIGHT BONE OF A MALE AGED FORTY-FOUR.

To illustrate Mr. ARTHUR CHEATLE's communication to the Otological Society of the United Kingdom, May 4, 1907.

PLATE II.



FIG. 3.—RIGHT BONE OF A MALE AGED FORTY-TWO.



FIG. 4.—RIGHT ADULT BONE.

To illustrate Mr. ARTHUR CHEATLE'S communication to the Otological Society of the United Kingdom, May 4, 1907.

PLATE III.

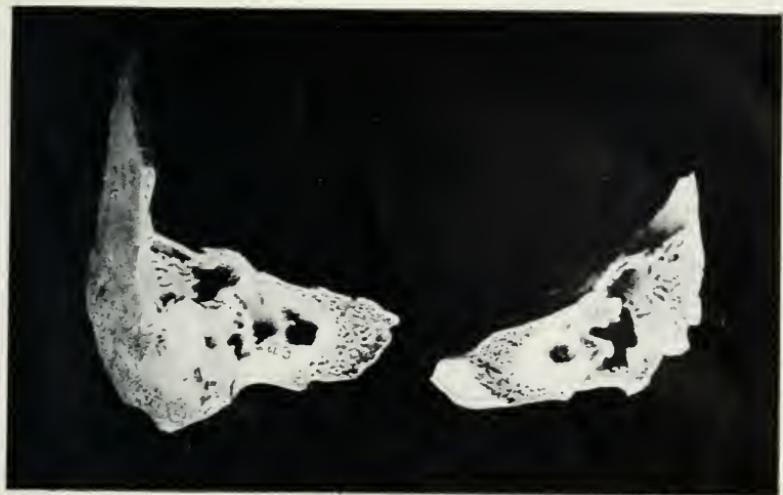


FIG. 5.—RIGHT BONE OF A MALE AGED SEVEN MONTHS.

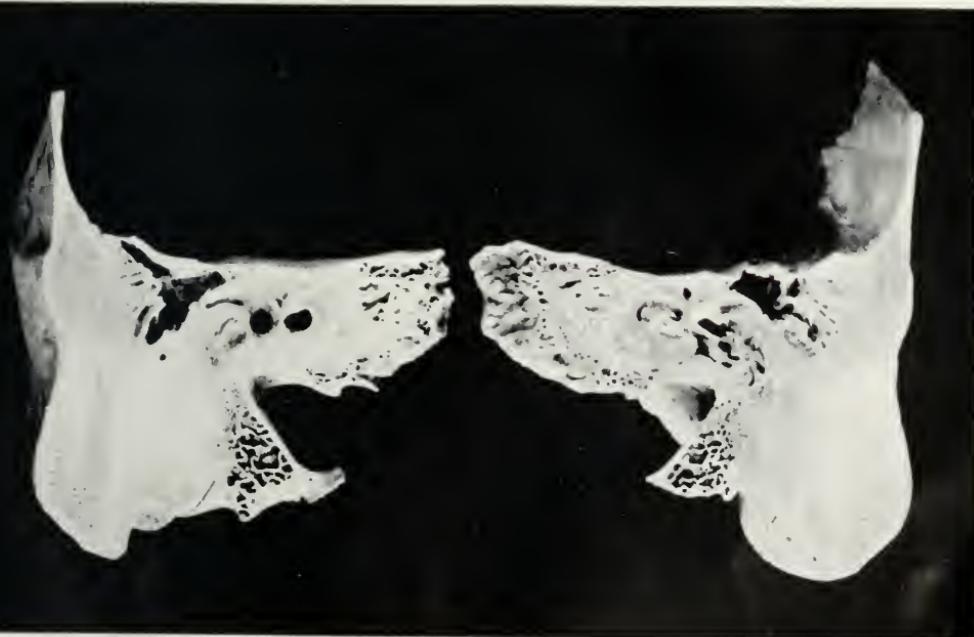


FIG. 6.—RIGHT ADULT BONE.

To illustrate Mr. ARTHUR CHEATLE's communication to the Otological Society of the United Kingdom, May 4, 1907.

the lateral sinus, more frequently than in cellular mastoids, occupies a forward position (total 38); (5) the most extreme forward position of the sinus is found under these circumstances; (6) the greatest thickness of the outer antral wall is seen in these types; (7) the cavity of the antrum is usually small; (8) the difficulty in operating on these types is obvious, and is enhanced if the antrum occupies a high position, and if the lateral sinus is also forward. A dense outer antral wall is not always associated with a diploëtic mastoid.

It seems, looking back over the cases in which one has performed the radical operation, that the infantile type has been very common. May the anatomical condition account for the persistence of discharge owing to the inability of the pus, in the acute stage, to find vent through the mastoid cells?

Dr. ADOLPH BRONNER suggested that Mr. Cheatle should have stereoscopic photographs made of the most typical cases. Such photographs would be of great use to all the members.

Dr. DUNDAS GRANT congratulated Mr. Cheatle upon his monumental work, which was too huge to discuss the first time of hearing. He asked whether Mr. Cheatle could confirm the description given by Symington, in his work on the anatomy of the child, to the effect that the antrum in the infant was close to the surface, and that a deposit of dense bone formed on the surface of it, which was at its thickest at about twelve years of age, and then became gradually hollowed out as the patient got older. That description had probably been founded upon fewer specimens than the present series of Mr. Cheatle's, but Dr. Grant's experience in operating seemed to be confirmatory of what Symington said: that in boys at about the usual public school age it was comparatively difficult to enter the antrum, which then lay under a considerable thickness of dense bone. In acute cases, when he had seen unfortunate results, it was chiefly at that age. Bezold had pointed out that acute mastoiditis subsequent to suppuration in the middle ear was most common when there were large pneumatic spaces, which invited suppuration, but this was comparatively easily dealt with. When suppuration took place in the infantile type, however, it was more difficult to deal with, and possibly, for mastoids of this type to be affected, the disease was more virulent in its nature, and the results were, on this account, proportionately less satisfactory.

Mr. E. B. WAGGETT: The specimens compelled one to ask whether there was really such a disease as osteo-sclerosis of the mastoid process. Was there any pathological evidence of it?

The PRESIDENT thought the series a very interesting one, as explaining the difficulties which were constantly met with in operation. When, in operating, the bone was found very dense, it was usual, years ago, to speak of it as due to osteo-sclerosis. When the Society's Museum was started he hoped Mr. Cheatle would present a number of those specimens to it. When he (the President) was a demonstrator of anatomy, the views held concerning the proportion of pneumatic to dense bone, at different ages, were very different to those now held, thanks to Mr. Cheatle's researches.

Dr. URBAN PRITCHARD said the specimens had cleared away from his mind any idea of osteo-sclerosis of the mastoid process.

Dr. BRONNER said that osteo-sclerosis was generally recognised only to occur in diseased bone, or, at all events, chiefly there, but the specimens shown were normal. Where chronic otitis occurred there certainly was often osteo-sclerosis, but there were very few cases of osteo-sclerosis without suppuration. The normal specimens shown were apparently not cases of osteo-sclerosis at all, but a definite diagnosis could only be made by the help of the microscope. Macroscopic appearances were of no scientific value at all.

Dr. McBRIDE thought that before such a statement went out from the Society that there was no such thing as osteo-sclerosis members should make sure there was not. Mr. Cheatle's collection had gone far to show that there could be within the limits of the normal a condition in which what used to be known as osteo-sclerosis occurred. He thought, however, that there was not any justification for at once discarding that term. He would like to hear whether anyone had shown that there was no histological difference between cases of osteo-sclerosis as found in prolonged suppuration and those now exhibited.

Mr. CHEATLE, in reply, said, in answer to Dr. Grant, he did not think there was any difficulty in a child of twelve; the child was growing, the antral wall was getting thicker, but he did not think there was particular difficulty in getting into the antrum. What had been described as osteo-sclerosis was a normal condition, and he had seen hundreds of specimens of suppuration, but nothing which would make him think that osteo-sclerosis was due to suppuration. Those bones which had been described as osteo-sclerotic were simply cases of suppuration in which the infantile type was present.

ELECTRIC OTO-MASSEUR GIVING 3000 TO 18,000 VIBRATIONS PER MINUTE.

By RICHARD LAKE.

Mr. WAGGETT raised the question as to whether there was sufficient care exercised by instrument makers as to the sale of such machines with a rapid vibration. He thought they were dangerous things to supply to the public without the aurist carefully testing them upon himself. It was important that the stroke of the piston should be small—about one tenth of the adjustment which was on the present machine—and he knew there was at least one case of detachment of retina by the use of a vibratory machine. He thought such instruments should not be sold except through authorised persons.

Dr. MILLIGAN asked what Mr. Lake's experience was with regard to the effect of the instrument upon the auditory nerve? He wondered whether it had any deleterious effect upon its function. He could imagine it would have a beneficial effect on the structures of the middle ear, but such rapid rarefaction of air in the meatus might injure the nerve.

Dr. E. LAW said the instrument appeared to be an excellent vibrator, but suggested that it would be beneficial to warm the air and, if possible, lessen the noise. He asked what Mr. Lake's experience was in the use of such an apparatus on old people. In two such cases in his practice it had produced permanent tinnitus. He believed that had been other people's experience in some patients who had not previously complained of noises.

Dr. McBRIDE asked whether any one present had found the use of such an apparatus of real and permanent value? He was aware that many people who used them believed they were benefited by them. He possessed an apparatus, but not with such rapid vibrations, and had used it on many patients, but the best that he had found was the production of a little good temporarily. He had never seen sufficient benefit to justify him in asking the patient to come back and have it repeated. He had seen a hand apparatus act beneficially on tinnitus, but it had not permanently benefited the hearing. Now that so much was known as to the pathology of sclerosis he did not see how one could expect such cases to be improved by vibration. Even in advanced chronic middle-ear catarrh one was not likely to get much further by its use.

Mr. HUGH JONES asked whether there was any evidence that an extremely rapid vibration was better than one of a lower rate?

His experience was that the ordinary hand vibrator of slower rate, supplemented occasionally by one of 2000 vibrations per minute, lessened tinnitus somewhat, but caused no improvement in hearing.

Mr. CHEATLE asked whether any member had ever found in any patients any permanent good from any vibration of any magnitude? His own answer to the question was in the negative.

The PRESIDENT said he saw a patient a short time ago who was advised by a distinguished artist to procure an American vibrator, the gentleman having found benefit from its use. The patient came to the President in a great state of mind because of the whole tone and quality of sound having been altered since using the instrument; everything he heard had an irritating twang.

Dr. GRANT said his experience of such instruments had been very mixed. He had used a very gentle vibrator (Noebel's), a cheap hand instrument. The multiplication of frequency was brought about by means of a band, and there was a form which could be fixed on to a sewing machine. He thought such instruments should be as noiseless and gentle as possible. The evidence given him was that in some cases such a machine diminished tinnitus. Gentleness was of the utmost importance. Some of the noisy instruments so much advertised, and which were held over the ear, he thought had done mischief in some cases, and such patients had come to him on this account. On the other hand, there were some patients who insisted that they had derived benefit from them. He had tried to employ vibration without inducing noise by placing the vibrator against the spine. The patient could distinctly feel it shaking up the bones of the head. The use of the instrument could only be experimental in each case, and he feared that most frequently it did not relieve, though in some cases it did.

Mr. SECKER WALKER said that a few years ago he used the otomasseur a good deal, and several patients felt that they were benefited by it for a short time, but he gave up its use when he found no permanent good resulted. Some patients considered that the use of the masseur made them worse.

Mr. WAGGETT said he had some patients who were improved by it, and were kept up to a high level by its use; they were cases of old secondary sclerosis.

Mr. LAKE, in reply, said that if he dealt fully with the questions asked him it would be necessary to give definite data, which he had not brought, and therefore full replies would be without value. He had never yet seen a permanently bad result in any case in his

own care, because the great point was that when increasing the pace the length of the stroke should be lessened. The primary indication was where there was not a freely-moving malleus. Any obvious nerve-lesion was not suitable for it. The instrument was most distinctly useful when combined with other treatment. His own opinion on the matter was so strong that he was prepared to look up a series of cases, and if anyone wished it he would give some definite results. The air could be easily warmed. With regard to Mr. Waggett's statements that an auto-masseur had produced detachment of the retina, he believed Mr. Waggett had been misinformed. He believed the accident happened through using a vibrating massage instrument at the base of the skull.

A CASE OF EXTRA-DURAL ABSCESS ; OPERATION ; RECOVERY.

BY CHARLES G. LEE.

On the evening of August 13, 1906, I was consulted by a gentleman, Mr. J—, aged thirty-five, who had been sent to me by Dr. Paterson, of Grassendale. There was a history of discharge from the right ear in infancy; during childhood a polypus had been removed from this ear at the Liverpool Eye and Ear Infirmary; shortly afterwards the discharge ceased, until the last twelve months, when it re-appeared. The ear was syringed, but no medical advice was sought until last month, when Dr. Paterson was consulted; an interval of a month again elapsed before the patient again saw Dr. Paterson; the symptoms were now so grave that the patient was sent for special advice. When I saw the patient about 8 p.m. he appeared very ill, had an anxious expression, complained of severe headache, situated chiefly at the base. The temperature was 101° F., pulse 100.

The right external meatus was almost filled by a large, soft granulation polypus; pus was escaping from the sides, and considerable quantity was readily expressed by the fingers applied to the outside of the auricle. There was no tenderness nor any swelling over the mastoid behind, but pressure at the apex produced considerable pain.

The patient was urged to submit to an operation without delay and arrangements were made for his admission into a private nursing home. When this was done, on August 15, two days after our first interview, the Lady Superintendent of the Home informed me that he was so giddy as to be unable to stand without support; complained of great headache, vomited, seemed

apathetic, and thought he was going to die ; the temperature was 102° F.

August 16.—Morning temperature 99.8° F. Ether and chloroform were administered by Dr. Hurter, Mr. Malcolm Stockdale assisting me with the operation. The usual incision as for postural operations was made, and when the periosteum had been removed from the osseous surface, a large sinus was disclosed, leading in an upward and backward direction.

This opening was followed up and its calibre increased ; chisel and burrs, the latter being driven by a hand motor, were employed for this purpose. The bone was freely removed ; finally the antrum and tympanum were thrown into one continuous channel with the original fistula.

During the proceedings it was discovered that the greater portion of the roof and posterior wall of the antrum was absent. A large quantity of very offensive pus escaped, and cholesteatomatous material was removed. The dura underlying and covering the petrous was quite yellow. The parts were freely doused with boric lotion, glycerine of carbolic acid applied, and the cavity lightly packed with iodoform gauze. The external incision was closed with sutures.

The patient had a very restless night, and was in great pain. Temperature 100.6° F. On the 19th temperature reached 102.8° F. Dr. Paterson saw him with me, and we feared the onset of meningitis ; but fortunately our fears were groundless, for he gradually, but steadily, improved. The headache faded away, temperature became normal, and his look of misery gave place to one of serenity and cheerfulness.

It was found necessary to dress the wound daily for some three weeks, owing chiefly to the tortuosity of the channel in the bone. He left the nursing home on September 14, and is now quite well.

This case would appear to be one in which the invasion of the organism was early directed to the bony structures ; shortly, however, the attack included the meningeal, and had it not been for surgical interference at this juncture, doubtless the underlying cerebral tissues would have been, in their turn, subject to assault.

OTITIS MEDIA CHRONICA ; SINUS THROMBOSIS ; EXCISION AND OBLITERATION OF SINUS ; RECOVERY.

BY CHARLES G. LEE.

On Saturday, October 12, 1906, I was requested by Dr. H.

Freeth of Llangollen, to come and see a child suffering from ear trouble, and, if it should be judged necessary, to be prepared to operate.

Accordingly, the next morning, accompanied by Mr. Stockdale and a nurse, I went to Llangollen. We all saw the patient together and found a girl, aged ten, sitting up in bed, cheerful, free from pain, normal temperature, and who volunteered the information that she was quite better—an opinion that was shared in by her parents.

There was, however, an offensive discharge from the right ear, and some tenderness over the mastoid region on the same side.

The history supplied was as follows: the girl had had no trouble with either ear until she was three and a half years old, when she underwent an operation for the removal of adenoids; shortly—some few weeks—afterwards a profuse discharge commenced from both ears.

No particular treatment was adopted, nor was much attention paid to the discharge until October, 1906; the child was now in her tenth year, and the discharge had been in existence some six and a half years, disappearing and recurring from time to time.

This brings us to Monday, October 3, 1906. The child stated that she had been accidentally knocked down in the school playground. Tuesday she remained at home, complaining of headache and pain in the right ear.

Wednesday, October 5.—On this day headache was severe; she vomited her breakfast, and Dr. Freeth was consulted. Temperature 101° F. As she had been constipated since Monday an aperient was prescribed. Thursday.—Seemed much better, no headache; temperature normal. Friday.—Headaches recommenced, rather drowsy; temperature higher. Saturday.—Rigor in the morning, increased drowsiness and photophobia.

With this history, despite the apparently improved condition, and although the proposal to remove the child to Liverpool was discussed, it was thought wiser to at least investigate the condition of the antrum then and there. Dr. Freeth administered chloroform, which the patient took quite satisfactorily, and as soon as the cortical layer of the mastoid had been removed with the chisel a large quantity of very foetid pus escaped through the bony structure in spurts. On removal of the deeper layers of bone, appearances became complicated by an extra-dural haemorrhage, the blood having coagulated in the groove of the sigmoid sinus, and separated the sinus from the bony channel; so deceptive was

the state of things that some time was spent in ascertaining whether or no we had already opened a thrombosed sinus.

The wall of the sinus, evidently on the point of sloughing, was quite yellow, but this discolouration of the dura was found to be strictly localised to the line of the sinus. This is in strong contrast to a case I have quite recently seen, in which after plugging of the sinus, and ligation of the jugular, a large cerebral hernia occurred some days after the operation, coming through the dura near the site of the sinus.

An incision into the vessel showed that it was occluded by an unhealthy-looking clot; it was therefore determined to lay the sinus open and remove the clot. In order to afford free access and better opportunity to deal with the diseased structures, considerably more than two inches of bone in the course of the sinus and in the direction of the torcular was now removed, well beyond the discoloured area.

From the lower end all the softened clot was removed with a scoop, until free oozing of what seemed healthy blood followed.

At the upper end a control plug was placed between the bone and the wall of the sinus; and after removing with scissors all the discoloured portion the scoop was again employed to remove clot; this was instantly followed by a most profuse haemorrhage; thanks to the external plug, and another of cyanide gauze packed into the lumen of the vessel, this was stayed.

The shock of the operation having told somewhat severely on the patient, it was judged wiser to leave the complete operation to a later date.

A dressing of gauze was firmly applied, and the child passed a fairly comfortable night; henceforward the symptoms improved. By the third day after the operation the dressings had become offensive, and Dr. Freeth thought it better to remove the external ones without, however, disturbing the plugs in the vessel.

Saturday, the 15th, six days after the operation, we saw the patient again, and the plugs were now removed; when the compress from the upper end of the wound had just been lifted out a smart haemorrhage came on, but this was controlled without much difficulty. The temperature was normal, and the general condition satisfactory.

I did not see the patient again until February of this year, when she came to Liverpool; and I found, to quote Dr. Freeth's description contained in a letter, "The little patient is now in a splendid condition, she has markedly put on flesh, she is bright

and happy, and has no headaches. The wound behind the ear has solidly healed."

CHRONIC SUPPURATIVE OTITIS MEDIA, LATERAL SINUS THROMBOSIS,
CEREBRO-SPINAL MENINGITIS, PNEUMONIA DUE TO STAPHYLOCOCCUS
PYOGENES AUREUS.

BY CHARLES G. LEE.

Ellen D.—, aged twelve, was admitted into the Liverpool Eye and Ear Infirmary under Mr. Lee's care on August 28, 1906, with the history that she had been ill for about three weeks, suffering with great pain in the head, accompanied by a discharge from both ears.

The parents attributed her illness to the result of a blow over the ear which she had received the day her illness commenced; as they stated previously she had had no discharge or any trouble with her ears; this latter statement, however, was untrue, as the patient herself stated on the day after admission into the infirmary that as a small child she had suffered from a discharge from the left ear, but that the discharge had entirely ceased until two weeks ago, when, after the injury already referred to, it made its reappearance.

Day of admission.—Temperature 103° F.; pulse 120. August 29.—Temperature again 103° F. Left tympanic membrane completely destroyed; offensive purulent discharge. Several large flabby granulations in meatus. Well marked double optic neuritis.

Peroxide of hydrogen, carbolic lotion, and glycerine of carbolic acid were employed to-day—August 30.

Rigor with temperature of 105.6° F.; 9.30 p.m. post-aural operation. Mastoid sclerosed.

Antrum very small; groove of sinus full of pus, bone in course of sinus extensively removed and the vessel well exposed.

There was no direct communication between antrum and sinus, hence infection probably spread through small veins.

The sinus wall was cleansed with 1 in 20 carbolic acid, and needle introduced into sinus through which watery-looking blood escaped; the condition of tympanum and antrum as disclosed did not show marked pathological changes.

Following the operation the temperature fell to normal, and remained down for twenty-four hours, when, after a slight rigor, it rose to 101.4° F.

September 1.—As I was leaving town for annual holiday Mr.

Stockdale proceeded to investigate the internal jugular, and he has kindly furnished me with the following description of the operation. Henceforth I am quoting Mr. Stockdale:

The skin having been prepared an incision was made over the anterior border of the sterno-mastoid, extending from the apex of the mastoid to the upper border of the thyroid cartilage. The platysma was incised, the anterior border of the sterno-mastoid defined, the deep fascia opened, and the muscle drawn outwards with a retractor. The fascia beneath was tough and infiltrated with inflammatory products, especially along the line of the vessels, the sheath also being surrounded by a mass of inflamed lymphatic glands.

On opening the outer side of the carotid sheath the internal jugular was found to be collapsed, its wall being represented by a yellow slough.

The incision in the skin and deep fascia was then carried down to a little below the cricoid cartilage and the vein exposed to lower limit of incision.

Below the level of the hyoid bone the wall of the vessel appeared normal in colour, although empty and collapsed.

The facial vein was prominent and appeared thrombosed about its last half inch.

Owing to the infected condition of the jugular and its surroundings, and having in recollection a previous case in which the internal jugular was ligatured about the level of the cricoid cartilage, and in which, after division, the lining membrane appeared healthy, but later, however, at the autopsy it was found that the infection had extended along the inner coat of the vein to the right innominate, it was thought advisable to excise the vein fully, so now the incision was extended to just above the inner end of the clavicle. The sterno-mastoid being firmly retracted outwards and the omo-hyoid downwards, the internal jugular was divided between two silk ligatures about half an inch above the clavicle, and dissected out from below upwards. Above the posterior belly of the digastric was drawn up, and as much as possible of the sloughing vein was removed. The facial vein was ligatured about one inch from its termination. The lower end of the wound was sutured and the upper packed with cyanide gauze.

At this stage of the operation, the patient's condition became serious and a slight rigor occurred. However, the sinus was dealt with; bone was removed along line of sinus with cutting forceps; on opening the sinus itself it was found to contain

granulation tissue and clot, especially at its bend. No haemorrhage from lower end; upwards the vessel was opened until free haemorrhage occurred; both ends were now packed with iodoform gauze.

The temperature continued irregular on September 5; no rigors.

September 6.—More bone removed, plug taken out, a little pus escaping. Sinus slit and clot removed until free bleeding again occurred, which was arrested by packing.

September 12.—Up to this the wound had been dressed daily, and on the last three occasions portions of plug were removed from upper end of sinus; to-day, when the last fragment was removed, free oozing of blood occurred.

Henceforth, with the exception of two occasions when for two or three days some improvement of symptoms appeared, the case appeared to be getting more hopeless. To increasing intensity of the optic neuritis vomiting was added, headache became worse, severe attacks of pain in the left leg, so severe as to require morphia.

A comatose condition gradually came on, and the patient lingered until November 3, when the termination came.

Post-mortem (November 7, 1906).—Body extremely emaciated. Linear scar over anterior border of left sterno-mastoid, extending from apex of mastoid process to just above inner end of the clavicle. There was a scar in the region of the original post-aural incision; from this a depressed cicatrix, following the line of the lateral sinus, extended to about midway between the mastoid process and the external occipital protuberance, which presented a small granulating surface about its centre.

The calvarium having been removed, the dura, although normal in appearance, was under considerable tension. After the dura had been reflected the surface of the brain was found to be hyperæmic, with yellow streaks here and there following the course of the veins; scattered over the surface were numerous circular yellow areas, somewhat raised, some minute, but others as large as a shilling (localised meningo-encephalitis). On removing the brain the base of the skull contained a considerable amount of thick pus with yellow flakes floating in it, which extended into the spinal canal. The optic nerves were bathed in pus, and on section appeared distinctly pink in colour.

The under-surface of the brain was covered with thick, purulent material, extending from the optic commissure to the cerebellum. All the ventricles were filled with thin, purulent fluid, in which yellow lymphy flakes floated.

The sinuses.—The remnant of the left lateral, which consisted of about the upper two inches, was occupied by a disintegrated clot, which extended into the straight sinus and along the veins of Galen into the ventricles. The infective process did not involve the opposite lateral sinus, and the other sinuses were normal.

The left internal jugular vein was represented by a tube less than an inch in length, extending upwards from the innominate.

The pericardium contained a considerable amount of fluid, which, on standing, yielded a purulent deposit.

The heart itself and large vessels showed no pathological changes.

The lungs.—On right side a few adhesions between the two layers of the pleura. The left, extensive adhesions, which extended almost over the whole surface. Nodular patches of consolidation were scattered through the substance of the lung. Other organs normal.

Fluid, obtained by lumbar puncture and incubated on agar, yielded a pure culture of *Staphylococcus pyogenes aureus*.

In considering these three cases the first requires but brief comment; it is an example of a class which the advance of aural surgery enables one to treat with confidence and success. With regard to the second and third cases there exist some features common to both that may merit a moment's notice.

(1) The patients were both young girls.

(2) The onset of the serious symptoms was in each case immediately subsequent to a direct injury applied to the outside of a previously diseased ear.

Is it possible that, owing to the rupture of vessels hitherto dormant, micro-organisms received more invigorating pabulum, and so become active and malignant? MacEwen has pointed out the dangers that may attend removal of aural polypi, and from the above cases it would seem that some slight violence applied to an old-injured ear may have equally serious consequences.

Additional interest attaches to the third case from a forensic point of view.

The third feature shared in by each of these patients was that the vascular structures were those involved most seriously.

Finally, the second case proves that ligature of the internal jugular is not always obligatory, or even desirable, when serious disease exists in the sinus.

Dr. MILLIGAN said the point raised by Mr. Lee was of great

importance, namely the effect of a blow when there was an already existing disease of the ear. A few years ago he was in court for two days in connection with a case of the kind in which an action was brought by a parent against a school mistress for boxing a child's ear. The action was defended by the National Union of School Teachers, and from the point of view of the assailant it was an important matter. The charge was that the blow had created the disease. He was called into the country to see the patient, and at that time there was incipient mastoid disease, and in addition old-standing middle-ear disease. He could not say that the blow had had nothing to do with aggravating the existing disease, but there was no doubt that the blow did not cause the disease. The tendency was to greatly exaggerate the injury done by a blow on the ear, and parents naturally had an exaggerated idea of the amount of force used. It was often difficult for the medical man to state that a blow had aggravated existing mischief.

Dr. JOBSON HORNE said that as otologists they must be agreed that boxing children on the ears was a practice not to be encouraged, whether it produced disease or not. If it went out from the Society that it was a detrimental practice, and injurious to a child's hearing, it might be a means of bringing school teachers to recognise that there were other ways of correcting children.

Mr. SYDNEY SCOTT thought that if Dr. Horne's suggestion were carried out it would lead to a great deal of litigation, and more harm might result than was intended. Unless there was direct evidence of ruptured membrane in a previously healthy ear, and of secondary infection, one could not say that boxing a child's ears had caused the condition which Mr. Lee described in his cases. His opinion was that such an injury produced in this way was excessively rare.

NOTES ON THE FREQUENCY OF MARKED HYPERSTROPHY OF THE PHARYNGEAL EXTREMITIES OF THE EUSTACHIAN TUBES, WITH ANALYSIS OF FOURTEEN CASES.

BY JAMES DONELAN.

The paper will be found reported *in extenso* on page 241 of this issue.

Dr. McBRIDE asked why Dr. Donelan used the term hyperstrophy? How did he know they were not congenitally enlarged? He (Dr. McBride) used posterior rhinoscopy in all his ear cases, and it was not often that he could not see the choana and Eustachian orifices, and he had been struck by the enormous variations

in size. In some cases there was not only a large Eustachian orifice but a posterior margin was granular. He had seen that in cases where adenoids had been previously removed. The important point was, that given such a case, could one do very much? He thought far the larger proportion of apparent hypertrophies were really congenitally large orifices. Had Dr. Donelan excluded that possibility?

Mr. WAGGETT thought it would be important also to take the dimensions of the skull, because in many cases the Eustachian cushions were close together, without being enlarged, when the choanae were narrow.

Dr. BRONNER thought the question was important in relation to adenoids. Most people had adenoids more or less. When operating for adenoids it was usual not to touch that region at all. It was his former practice to use Hartmann's curette, which cut sideways, but he thought it a dangerous instrument, because one might remove part of the Eustachian tube. In one or two of his cases he did find a small ring of cartilage which came from the Eustachian orifice, although he had seen no bad results. He now used Meyer's ring-knife, and scraped that region. He had proved by examination, after operation, that in those cases where there was recurrence of deafness the upper part of the pharynx might be normal, but there were a few adenoids in the region of the Eustachian tube. In all cases of adenoids he thought Meyer's ring-knife should be used in that region.

Dr. MILLIGAN thought that prominent Eustachian tubes were not uncommon. He had practised on much the same lines as Dr. McBride, examining, as far as possible, every naso-pharynx, and had seen a number of unduly prominent Eustachian tubes. He did not regard them as hypertrophies, but simply as congenital conditions. When a prominent Eustachian tube projected into the post-nasal space he had found a certain amount of loose, soft tissue behind, but never enough to give marked trouble.

Dr. JOBSON HORNE remembered a case shown by Dr. Furniss Potter before that Society, in which the unusual size of the pharyngeal extremities of the Eustachian tubes was very exceptional.

Mr. HERBERT TILLEY also remembered Dr. Potter's case, and said most of them would look upon such a case as an object of great curiosity. He believed Dr. Donelan was referring to that class rather than to the smaller enlargements, which would be scarcely striking or out of the common. Mr. Tilley thought they must be congenital in origin.

MR. RICHARD LAKE said he could recall about three cases of large Eustachian tubes, and in all of them there was middle-ear deafness. Therefore he thought at one time it was partly a pathological condition. He had wondered what would be the effect of removing one or both of those enlargements. The only danger seemed to be that of stenosing the orifice afterwards. He believed he would have removed it if he could have seen his way clearly.

MR. HUGH JONES said the only case he had seen besides Dr. Potter's which had been mentioned was one quite recently, in which there was a very marked difference in the size of the tube orifices. One orifice was nearly half as large again as the other, and there was a corresponding difference in the size of the cushion. He did not know whether that difference threw any light on the question of hypertrophy. The choanæ were hidden all but a narrow chink on either side of the vomer.

DR. DONELAN, in reply, said he was sorry he used the term "hypertrophy," as that seemed to offer an answer to his query as to the cause of the enlargement. He did not suggest any of his cases were as remarkable as that of Dr. Furniss Potter, which latter was the most remarkable he had seen. All his common cases had been examined under an anaesthetic, and all of them felt as large as the sea anemones of these latitudes. Probably, as Dr. McBride suggested, they were of congenital origin. If he could bring the child and cleft palate case he would.

NOTES OF A FATAL CASE OF ACUTE LEFT MASTOIDITIS AND PURULENT THROMBOSIS OF THE LATERAL SINUS; RADICAL MASTOID OPERATION; EVACUATION OF THROMBUS; LIGATION OF INTERNAL JUGULAR.

BY JAMES DONELAN.

The patient was an Italian youth, aged eighteen. There had been for eight or nine years left suppurative otitis following scarlatina. He had had influenza for ten days, and apparently acute mastoid abscess for a week before admission. When seen it was decided to open the mastoid by Stacke's method. The antrum was filled with pus, granulations and cholesteatoma. The patient felt much better for the first twenty-four hours after the operation, but next day had a return of vomiting and vertigo, as well as some rigors, the temperature, which had fallen to 99.2° F. rising to 102.8° F. The sinus was now opened, the overlying bone having been removed by a flat gouge as far as the torcular, and as far as

one could trace the descending portion. It was found occluded by a convoluted thrombus full of pus for about one inch, in immediate relation with the mastoid cavity. The sinus having been cleared it was packed with iodoform gauze; the wound was left open and dressed.

In view of the pus in the sinus, and with a view to lessening as much as possible the danger of septicæmia, I requested Mr. G. L. Cheatle, who kindly assisted me with the operation, to ligate the internal jugular, and he did so. No thrombus was apparent in the vessel as far as it could be traced upwards. The patient went on very well for three days, but on the fourth day he had a rigor with acute pain in the right side over the ninth and tenth ribs in the nipple line with dulness on percussion over the lower third of the right lung. There were no signs of pleural effusion. The complication was considered to be pleuro-pneumonia following the previous influenza. On the following day (Sunday) the temperature continued to range between 102° and 103° F. On Monday the patient felt much better; the temperature had fallen to 101° F., and remained at about that figure during the day; the respirations had, however, increased in frequency (at times forty per minute); the area of immovable dulness, however, remained unchanged. I was unable to visit the patient next day, but was informed his condition was unchanged. On the following day he suddenly collapsed, the temperature fell rapidly, and he died somewhat unexpectedly.

The autopsy showed normal brain and meninges. The incision in the neck had healed by first intention. The lateral sinus at both ends was occluded by healthy organised thrombus, and the mastoid cavity had begun to granulate healthily. The right pleural cavity was filled with serous fluid, which was cloudy towards the dorsal region but contained no evident pus. The collapsed lung showed towards the border of the inferior lobe four or five small infarctions.

Though I had not seen the patient for twenty-four hours before death I think the pleural effusion formed rapidly in the last twelve hours of life. I have found Italians of the working class extremely liable to sudden extensive pleural effusions.

The question I desire to submit to the meeting is: Ought I to have suggested the ligation of the internal jugular, or ought I to have been content with disinfecting the sinus as far as possible? Up to the present I have operated in forty-nine cases of mastoid abscess. In four of these death took place from septicæmia. I have opened and cleared the sinns in four cases of thrombosis;

two of these recovered. The other two are the present one and one in which I ligated the jugular myself, and both died of pulmonary infarction. I have had no death when the operation was one of election and not performed for acute symptoms.

TEMPORAL BONE FROM A CASE OF "FRACTURE OF THE BASE OF THE SKULL." REMARKS UPON PROGNOSIS SO FAR AS THE POWER OF HEARING IS CONCERNED AFTER FRACTURE OF THE BASE.

BY W. MILLIGAN.

The patient, a man, aged fifty, was admitted to hospital at 1 a.m., upon Tuesday, April 9. On admission the patient was very obstreperous, but rapidly became comatose, and remained in a comatose condition until 11 a.m. upon the same day, at which hour he died. On admission blood was trickling from the right ear. According to the statement of the ambulance man when the patient was first picked up the haemorrhage from the ear was very copious. The history given was that the patient, who was intoxicated, fell down a flight of five stairs on to the top of his head. The right membrana tympani was found to be ruptured. There was no facial paralysis.

The *post-mortem* examination revealed the following state of affairs :

Brain, etc.—There are signs of haemorrhage from the right ear and nose. The scalp tissues and temporal muscles contain effused blood. There is very extensive subdural haemorrhage, the hemispheres being covered with a layer of blood-clot. In the region of the right lateral sinus there is a large extra-dural blood-clot. The haemorrhage has occurred chiefly from the right lateral sinus. There is also some haemorrhage under the pia mater. The right temporal bone is fractured, the fracture involving the middle ear and the external auditory meatus. The fracture extends upwards and backwards, in the squamous portion, passes backwards into the occipital bone posterior to the lateral sinus and through the lateral sinns back to the petrous portion of the temporal.

Thorax.—The subcutaneous adipose tissue is very large in amount. The costal cartilages are very extensively ossified.

Lungs.—Œdematosus.

Heart is large; the ventricular walls are relaxed and rather soft; there is some atheroma of the aorta.

Abdomen.—There is a very large amount of fat, both subcutaneous and within the abdomen.

Liver is enlarged, weight 5 lb. 2 oz. It is of a pale yellow colour, owing to very extensive fatty change.

The other abdominal organs appear normal.

The prognosis, so far as the power of audition is concerned, is a very important matter in those cases where recovery after the accident takes place. So far as his experience went it led him to believe that it depended upon the extent and character of the initial lesion. Cases of even severe auditory concussion were frequently recovered from, but where there was evidence of a gross lesion in the middle or internal ears it always appeared to him very problematic how much, if any, hearing would be regained. Time, and, to a certain extent, treatment, were important factors in arriving at any definite conclusion.

Dr. McBRIDE said the question was of great interest to him just now, because of a case he had recently examined. One sometimes saw patients with a history somewhat as follows: A man had a fall or blow, which might or might not have fractured the base of the skull with or without unconsciousness. Possibly the patient had gone to bed for a time, and when first getting up was giddy. His hearing was either impaired or gone. His impression as to prognosis in such cases was that it was bad in proportion to the amount of deafness present. One could not tell what the condition of the labyrinth was, whether there was a concussion lesion or an organic injury. He remembered one case distinctly where the old tuning-fork test pointed to middle-ear disease. He would like to know whether Dr. Milligan's case was tested by the modern method, using different tones.

Dr. PRITCHARD said he had always been interested in that subject, and had formed a very rough way of arriving at a prognosis. He referred especially to cases in which the test showed nerve deafness, and he concluded that if there was no improvement in three months there never would be any. If there was improvement by three months from the accident the condition might go on improving for some months further. He remembered a remarkable case in which this accident had occurred twice. The patient fell down on ice on each occasion, and there was an interval of eight years between. It was a case of nerve lesion, and he slowly improved on both occasions to quite good hearing. The second time the olfactory region was affected, and he not only had diminution of smell but perverted smell. Before recovery he said that one of the nastiest things he could be offered was a peach. In such cases he thought there was a small fracture and haemor-

rhage, and when the haemorrhage was absorbed the symptoms improved.

Mr. LAKE expressed his gratitude to Dr. Milligan for bringing the case forward. One could not clearly express any rule as to prognosis without having a series of cases, and as he had not an appointment in a general hospital he did not see a large number of cases, nor did he see them early. Therefore, his opinion on prognosis was not of much value. He wondered whether there was not a certain amount of mechanical influence. When a man fell from a height on to his head one would expect the fracture to go through the internal ear on account of the weight of the body being driven against the base of the skull, whereas, if the patient was thrown on the side of the head he was more likely to get fracture of the squamous bone than the petrous bone. There were cases alluded to by Dr. McBride in which there was concussion of the labyrinth; that, if severe enough, was never recovered from, nor was a fracture which went through the labyrinth. If detailed examinations of many cases were published there would be most useful data to work upon.

Dr. BRONNER thought that in concussion of the ear the prognosis depended, to some extent, upon whether there had been pre-existing trouble. A small concussion of the ear, even without fracture, increased the deafness very much if the ear was already diseased. He believed that in some cases the prognosis depended very much on whether there was compensation or not. Sometimes there was quick recovery after compensation had been paid.

Mr. SYDNEY SCOTT said, in relation to injuries of the temporal bone, that some years ago a woman, aged forty-five, came into hospital saying water was running from her ear. On the previous night she had received a blow over the mastoid on the left side, and the following morning noticed a watery discharge from the left ear. She walked into hospital, was intelligent, and had no facial or other paralysis. There was a vertical laceration of the tympanic membrane anterior to the malleus, and almost clear fluid was dripping out of the external auditory meatus. He collected some of the fluid in a test-tube, about 10 c.cm. in as many minutes. It was slightly opalescent, with the chemical characters of cerebro-spinal fluid, reducing Fehling's solution, and containing chlorides, but no blood or albumen. On looking into the literature at the time he found Erichsen quoted two similar cases at St. George's Hospital. The patient remained in hospital much against her will, because she felt so well. The fluid discharged for two days. One

ounce was collected in the first twenty-four hours. She was deaf on admission in this year, but Mr. Scott had no note of the hearing when she left the hospital about a fortnight later. Cases in which haemorrhage was the outstanding feature were interesting in connection with Rawling's work on "Fractures of the Base of the Skull." Rawling had shown that haemorrhage from the external auditory meatus, if profuse and prolonged, came, not as a rule from the lateral sinus, as in Dr. Milligan's case, but from the middle meningeal artery, and that one might look upon the escape of the blood from the ear as beneficial rather than otherwise, and a condition to be encouraged instead of stopped by plugging, which might lead to the formation of an extra-dural haematoma compressing the brain. Judging from his own general hospital experience and post-mortem work Mr. Scott considered three possibilities as common in fractures of the temporal bone. The injury involved (1) the labyrinth, (2) it involved only the tegmen, or (3) the walls of the external meatus alone. Cases occurred in which these conditions were combined.

Dr. MILLIGAN, in reply, expressed his obligations to those who had discussed the cases. Some of the patients were tested in the ordinary way, and some with Bezold's series of tuning forks. Dr. Pritchard's rule as to recovery in three months was a useful guide. In answer to Mr. Lake's suggestion he would bring forward at another meeting more detailed statements, and perhaps other members would do the same. In fact, it would not be amiss to have a symposium on the subject. In answer to Dr. Bronner's question concerning previous disease, he imagined that if there had been previous disease the prognosis would not be so good. He quite recognised that the question of compensation had much to do with prognosis. In reply to Dr. Scott concerning the middle meningeal artery, in his particular case bleeding was entirely from the lateral sinus, and there were great blood-clots on the brain. The result of his observations tended to show that the line of fissure did not pass through the internal ear, but by the side of the internal ear and through the middle ear, and that in those patients who recovered some hearing the labyrinth at the moment was concussed, and remained so for two or three months, and then gradually resumed its function. One often found that when the patient was sufficiently conscious to be properly examined there was practically no hearing at all, but in a few cases returned slowly. It could not be due to the healing of the middle ear that the hearing returned. A gradual absorption of blood extravasated

into the internal ear or a slow recovery from severe concussion probably explained the return of audition, in a certain number of cases.

Abstracts.

PHARYNX.

Link, G.—*Acute Oedema of the Pharynx, with Report of a Case requiring Rapid Tracheotomy.* “Med. Record,” March 2, 1907.

In this case the writer was called suddenly to the bedside of a male patient who was suffering from urgent dyspnoea following upon an attack of double tonsillitis. Examination, so far as it was possible to examine, revealed an extremely oedematous condition of the pharyngeal mucosa. An attempt was made to intubate the larynx, but without success, owing to the want of proper instruments. The dyspnoea became so urgent that a tracheotomy was performed. An uninterrupted recovery ensued, the oedema rapidly subsiding. Later both tonsils were carefully removed by dissection.

W. Milligan.

NOSE.

Kubo, I. (Fukuoka, Japan).—*On the Origin of the so-called “Lobular Hypertrophy” of the Turbinates.* “Archiv für Laryngol.,” vol. xix, Part II, 1907.

This paper is based upon a microscopical examination of eighteen cases of lobular hypertrophy of the inferior turbinate. Sixteen of these were men, two were women, and more than half were between twenty and twenty-nine years of age. Specimens prepared from these cases showed the following points of interest: The epithelial layer and the basement membrane were free from pathological changes. The papillæ, or lobules, consisted mainly of oedematous connective tissue, showing some round-cell infiltration, and containing neither cavernous spaces nor glands. This tissue closely resembled that composing a nasal polypus, and represented the greatly hypertrophied “adenoid” or subepithelial layer. Beneath this the lacunar or cavernous layer consisted of glands, vascular spaces, connective-tissue fibres, and round cells in varying proportions. Much stress is laid on the fact that the openings of the gland-ducts were situated at the bottom of the depressions between the papillæ, and almost never on the summits of the latter. The cavernous spaces were somewhat reduced in size, and the connective tissue more abundant than usual.

While, in the author's opinion, the so-called “smooth” form of hypertrophy is due mainly to changes in the cavernous layer, the lobular or papillary form is dependent upon an overgrowth of the “adenoid” layer.

between the gland-ducts. This tissue is almost uninfluenced by the application of cocaine, and in this respect, as well as in general structure, the lobular hypertrophy agrees with the ordinary nasal polypus.

The author strongly dissents from the views of Hopmann and others, who regard the overgrowth as papillomatous in nature. He finds, on the contrary, that the epithelial layer is quite normal. Nor can he agree with Kopetzky, who has recently attributed the lobular hypertrophy to an increase of elastic fibres in the subepithelial layer. The author's specimens show no such increase, and in some the elastic fibres are more scanty than usual.

Thomas Guthrie.

ACCESSORY SINUSES.

Maljutin, E. N. (Moscow).—*Cases of Frontal Sinus Disease.* “Archiv für Laryngol.,” vol. xix, Part II, 1907.

The author describes two cases of empyema of the frontal sinus, both of which were characterised by the formation of a spontaneous fistula of the anterior wall. The first case presented, in addition, an apparently congenital defect of the posterior wall, an anomaly previously mentioned by Zuckerkandl alone, who saw but one instance of it. The patient, a peasant, aged forty-seven, had been treated for about a year for a discharging fistula situated in the middle of the glabella. The fistula had followed upon the opening of an abscess in that position. Operation disclosed a large frontal sinus on the right side extending to the left across the middle line. Within the cavity of the sinus was found a small sac filled with pus and granulations, which communicated with the exterior through the fistula, but was completely shut off from the true cavity of the sinus. Examination of the posterior wall of the sinus itself disclosed an oval defect 2 cm. long and 1 cm. broad, through which bulged the normal dura mater, and in the mid-line the superior longitudinal sinus, the latter showing very well-marked pulsation. The margins of the opening were smooth and rounded, and quite free from any evidence of disease, so that the author has no doubt that the defect was a congenital one.

In the second case an empyema involving the entire frontal sinus had perforated through the anterior wall.

Spontaneous perforation of the comparatively resistant anterior wall, such as occurred in these two cases, is very rare; the author has been unable to find records of more than two similar cases (by Botev).

Thomas Guthrie.

LARYNX.

Bond, J. W.—*Preliminary Laryngotomy.* “Brit. Med. Journ.,” January 5, 1907.

During the past fifteen years the author has performed laryngotomy as a preliminary measure when dealing with some of the major opera-

tions about the upper respiratory tract. His method is as follows: (1) An assistant lifts up a vertical fold of skin, the centre of which is at the upper border of the cricoid cartilage (the head being extended). (2) The centre of this uplifted fold of skin is transfixated and cut through so as to produce a transverse incision of one inch in length. (3) A pair of sharp closed scissors curved on the flat are plunged through the crico-thyroid membrane downwards and backwards in the middle line, keeping close to the upper border of the cricoid so as to avoid injuring the transverse artery. The scissors are then widely opened. (4) The laryngotomy tube is then inserted between the blades of the widely-opened scissors, or retractors are used after having withdrawn the scissors. After the tube is *in situ* the pharynx can be packed with a large flat sponge; if necessary the upper laryngeal orifice can also be packed by passing an eyed probe upwards through the wound into the mouth and threading on a small sponge attached to the tape. The probe and tape are then drawn downwards, with the result that the upper laryngeal orifice is securely closed.

The operation can be very rapidly performed, and is of particular value in those cases of operation about the nose, jaws and pharynx likely to be attended by severe haemorrhage.

W. Milligan.

Butlin, H. T.—*Preliminary Laryngotomy.* “*Brit. Med. Journ.*,” January 5, 1907.

In this short communication the writer speaks very favourably of Dr. J. W. Bond’s suggestion (*vide supra*) as to the performance of preliminary laryngotomy in certain operations about the upper respiratory or pharyngeal tract. A few difficulties at times encountered in performing laryngotomy are mentioned.

W. Milligan.

EAR.

Bryant, S.—*The Preservation of Hearing.* “*Med. Record*,” March 2, 1907.

A general plea for the early detection and treatment of auditory defects with the suggestion that aural patients should present themselves for examination once a year.

W. Milligan.

Oppenheimer, Seymour.—*Remarks on the Radical Operation for the Cure of Chronic Suppuration of the Middle Ear.* “*Med. Record*,” March 16, 1907.

The author considers that it is becoming more and more recognised that intra-tympanic operations must fail to cure chronic suppurative middle-ear affections on account of an inability to remove all the existing morbid tissue. He holds that the more the pathology of aural suppuration is considered and appreciated the more readily will active surgical measures be instituted at an early stage of the disease. To obtain good results, so far as audition is concerned and rapid and successful healing, it is necessary to eliminate all diseased areas and to convert the tym-

panum, antrum and mastoid cells into one large cavity with smooth walls and without any recesses, readily accessible and visible from the enlarged auditory meatus.

W. Milligan.

THERAPEUTIC PREPARATIONS.

MESSRS. BURROUGHS WELLCOME & Co., London, New York, Montreal, Sydney, Capetown.

“ELIXOID” FORMATES COMPOUND.—Each fluid ounce contains: Calcium formate gr. xii (0.778 grm.), sodium formate gr. vi (0.389 grm.), magnesium formate gr. vi (0.389 grm.). Considerable success has attended the internal administration of formates where it has been desired to produce a tonic and stimulating effect on nerve and muscle. In neurasthenia, tremor, diphtheria, gout, and muscular fatigue highly beneficial results have been observed. In pneumonia and phthisis they stimulate the appetite and improve nutrition. They also possess marked antiseptic and diuretic properties.

“Elixoid” Formates Compound presents a convenient and palatable means of administering the formates of calcium, sodium, and magnesium without causing gastric disturbance. Two fluid drachms may be taken thrice daily, in water, after food. Issued in bottles of four fluid ounces.

MESSRS. PARKE, DAVIS & Co., 111, Queen Victoria Street, E.C.

FORMIDINE is a potent antiseptic suitable for internal or external use. Chemically it is methylene di-salicylic acid iodide, a condensation product of iodine, formic aldehyde, and salicylic acid. It is insoluble in water, alcohol, and dilute acids. In contact with alkaline organic secretions it slowly dissolves and develops the characteristic germicidal properties of its constituents, hence it is most useful for bacterial infections of the intestinal tract. The dose is from 1 to 5 grains. Externally it is used in place of iodoform as a stimulating, non-irritating dressing for wounds and ulcers, and as a dusting powder for various skin affections. Its antiseptic power has been proved to be greater than that of iodoform, whilst it is free from offensive odour, does not stain the skin or clothing, does not irritate, and does not produce toxic effects when applied over large areas. It is supplied in sprinkler-top bottles of 1 dr. and 1 oz. Capsules, each 5 grains, in bottles of 25 and 100.

TRIPLE GLYCEROPHOSPHATES WITH NUCLEIN (Chocolate-coated Tablets).—These tablets provide the tonic, nutritive, and reconstructive properties of the glycerophosphates in association with the bactericidal action of nuclein. Nuclein, it will be remembered, also possesses the valuable power of increasing leucocytosis. This combination is useful in debilitated conditions generally, and particularly in the various manifestations of tubercular disease, as serofula, abscess, lupus, adenitis, ulcers, and phthisis. The tablets are supplied in bottles of 100 and 500 each.

THE

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

THE CHANNELS OF INFECTION IN TUBERCULOSIS AND THE PART PLAYED BY THE LYMPHATIC GLANDS IN ARRESTING, MODIFYING, OR PROPAGATING INFECTION, AND IN PREVENTING RECURRENCE OF THE DISEASE,

CONSIDERED WITH REFERENCE TO

THE THROAT, NOSE AND EAR.

By JOBSON HORNE, M.D., B.C.,

Surgeon to the Metropolitan Ear, Nose, and Throat Hospital; formerly Ernest Hart
Scientific Research Scholar of the British Medical Association.

It would be difficult to mention a disease about which more has been written within recent years than tuberculosis. It would be equally difficult to pass in review the literature relating to any one branch of the subject, and an attempt to completely summarise the work that has been done and the results arrived at would be attended with failure to do justice to all.

The results of recent research work have this in common: they are not so much the outcome of observations in the clinique or on the *post-mortem* table as of direct animal experiment. The artificial inoculation of the specific bacillus into an animal may be the "begin-all" and the "end-all" of tuberculosis so far as it relates to that particular animal, and as an experiment is complete, interesting, and instructive, in showing what the tubercle bacillus can be made to do in a susceptible animal under artificial con-

ditions. Without detracting from the modern triumphs of bacteriology and experimental pathology, it may truly be said that such an experiment throws but little light on the manner of penetration of the bacillus into the human subject, or upon the immediate behaviour of the human economy towards its invader. Still less does animal experiment assist in elucidating that more difficult problem, namely the difference of behaviour of human subjects towards the bacillus. In a word, to quote from a very suggestive address delivered by Sir Dyce Duckworth to the Liverpool Medical Institution in October of 1901, "Our modern pathologists reckon without their hosts." Welch, in delivering the Huxley Lecture at Charing Cross Hospital "On Recent Studies of Immunity with Special Reference to their Bearing on Pathology," gave expression to a thought which has frequently passed through my mind: "One misses only too often in purely bacteriological papers on this subject exact knowledge and descriptions of pathological conditions, and on the other hand, pathologists often fail to utilise pertinent facts and ideas which are familiar to bacteriologists." It would seem as though the time had come when a halt in bacteriological and experimental research usefully might be called and a stocktaking be made by a co-ordinating mind, in order that the shrewd observations of the older pathologists and clinicians may be more closely studied in the light of scientific medicine of to-day.

The present report does not attempt a *résumé* of all that has been written on a special branch of tuberculosis. To attempt such a *résumé* would be idle. The following is essentially the record of a research. The research was undertaken with a view of ascertaining the precise manner of the penetration of the bacillus into man, and the nature of the resulting reaction which allowed or prevented the subsequent development of a tuberculous infection. It has been my endeavour, clearly and tersely, to put on record not only exact knowledge and descriptions of pathological conditions met with *post mortem*, but also the corresponding clinical phenomena in the process of infection so far as they may be directly observed during life.

To ascertain such facts about infection it was essential to the research to select a region which was frequently a site of infection, and clinically within the range of ocular inspection.

Let us consider briefly the several channels through which in various media the parasite may gain admission to the body, and which channel is suitable for the purpose in hand.

To discuss the subject strictly *ab initio*, perhaps one should in the first place consider the question of infection of the foetus *in utero*. It is generally known and accepted that infection may take place *in utero* in cattle, but at present there is not sufficient reliable data upon which to base any general statement of infection of the human subject in that way, and the region does not come within the range of practical research.

Next, the skin, on the ground of facilities for ocular inspection, might seem a suitable region in which to study natural inoculation. The more common instance of such an infection is the *post-mortem* room wart, met with in those engaged in performing autopsies, and which is now known to be of a tuberculous nature. Cases are on record in which persons have become infected accidentally through cuts and scratches with instruments or with broken earthenware which has contained the sputum of a phthisical patient. *Post-mortem* room warts are commonly indolent, and although persistent, remain, as a rule, strictly local, whereas in the exceptional instances of inoculation through the skin by means of sputum the resulting infection has been more general. However, speaking generally, tuberculous infection through the skin—whether by accident or disease—is comparatively so unusual that it might almost be excluded from a research which sought to deduct general principles from a mass of material.

It will be generally conceded that the great portals of entrance of the bacillus are the respiratory tract and the mouth, leading to infection of the lungs and the alimentary canal. Whilst the alimentary canal, since the Royal Commission on Tuberculosis in 1895, has come to be more and more recognised as a channel of infection only second in importance to the respiratory tract, at the same time it is unnecessary to state that in the vast majority of cases tubercle bacilli are localised first in the lungs.

It has been demonstrated by numerous experiments that tuberculosis can be established in the lungs of not only susceptible animals, but also in the lungs of animals with some power of resistance, by causing them to inhale scattered particles of phthisical sputum. It was found that when dogs were made to inhale tuberculous virus and were examined a few hours afterwards, the bacilli were no longer present in the alveoli, but were found in the bronchial glands and the lymph channels leading from them. The lymph channels, as is known, have their origin in the spaces between the alveoli, and it was only when the tuberculous virus was in a concentrated form or the inhalation was prolonged that

the bacilli were met with in the epithelial spaces in the alveolar walls.

It would therefore seem that the bronchial glands act as filters, absorbing the bacilli as they would particles of dust. Whether and when the glands have a bactericidal action will be discussed later. It would further seem that when the bronchial glands, from any cause, are no longer able to take up or dispose of the bacilli—in a word, when they become choked or exhausted—then direct infection of the lungs by inspired air, or indirect infection from the glands, may take place.

The *post-mortem* room appearance of a tuberculous process developing from the root of the lung, and spreading in a fan-shaped manner towards the periphery, appears to be capable of two interpretations—either that it is the outcome of an active and direct infection from the bronchial glands, or else that it is due to an indirect or passive infection resulting from an inefficiency of the glands to deal with the invasion, the infection of the lung taking place at that spot which is nearest to the glands where the bacilli were blocked in their progress, and extending towards the periphery.

From the experimental work that has been done, and from *post-mortem* room observations, it may therefore be stated that in the vast majority of cases the tubercle bacillus is conveyed into the body by the air inspired, and that the tuberculous process is established in the lung, either by direct infection or indirectly by the bronchial glands.

The lungs may also become infected by ingestion through the mouth or alimentary canal.¹ Food material laden with bacilli in passing over the fauces may lead to infection of the cervical glands through the tonsils, and by extension down the neck into the mediastinal and poststernal glands into the lungs. Theoretically this is possible, and *post-mortem* and experimental evidence has been found to support it; at the same time infection of the lungs through the cervical glands is very difficult of proof. It has been spoken of as the descending gland tuberculosis of Schlenker.

The lungs may also become infected from the intestine through the lymphatic glands. This view is also based partly upon *post-mortem* room observations and partly upon animal experiment. At times caseous or calcareous mesenteric glands are met with, obviously of much longer standing than the tuberculous lesions in

¹ Sims Woodhead, "Channels of Infection in Tuberculosis," *Lancet*, 1894, vol. ii.

the lungs, and it has been concluded that infection has followed through these mesenteric glands, and from the chain of retro-peritoneal glands upwards through the diaphragm to the posterior mediastinal and bronchial glands to the lungs.

Furthermore, it has been suggested by Ravenel¹ that the lungs may become infected with tubercle through the intestine without there being found, *post mortem*, any abdominal evidences of tuberculosis. It is suggested that, owing to the activity of the lymphoid tissues in the intestinal walls during digestion, there is a constant current from the intestine to the mesenteric glands and thence up the thoracic duct into the venous circulation. Any tubercle bacilli which may have gained entrance into this stream are carried almost immediately into the lung, and deposited there by election. This may be spoken of as the upward path of infection of the lungs from the lymphatic glands.

All minute investigations into the etiology of tuberculous infection of the lung in man have this difficulty in common, that by the time the lung is available for purposes of research advanced changes have already taken place, or changes at least too far advanced, excepting by a fortuitous section, to allow of the earliest histological changes being observed. Our views about the manner of infection of the lung in man are based rather upon deductions from animal experiment than upon pathological facts directly observed in man. It therefore follows that the lungs would not lend themselves for the purposes of a research which sought the pathological and clinical phenomena of the beginning of a tuberculous infection.

More suitable regions had to be sought, and these were found in the larynx, the ear, the buccal cavity, the fauces, the nose, and the post-nasal region. Tuberculosis and its resultant effects upon adjacent structures, such as the lymphatic glands, and the part played by the glands in arresting and resisting an infection, can be closely studied in the parts mentioned *intra vitam* as well as *post mortem*. From these regions infected tissue, and tissue about to become infected, is obtainable during life, so that the histological details of the process can be more minutely gone into.

Laryngeal tuberculosis, whether viewed from the standpoint of the specialist, or of the physician, or of the pure scientist seeking information about the precise manner of tuberculous infection of the human body, is a subject which can establish a considerable claim to patient laboratory and clinical research. From the stand-

¹ *Univ. Penna. Med. Bulletin*, vol. xv, May, 1902.

point of the laryngologist it soon became evident to myself that the eye trained to detect in the larynx departures from the normal caused by tuberculosis would make very few errors indeed in the diagnosis of laryngeal diseases. The exclusion of tuberculosis as the causative factor is no small point gained in the diagnosis of the most serious cases with which the laryngologist has to deal, cases in which an immediate and exact diagnosis is absolutely imperative for the proper conduct of the case. There is a further reason for the serious study of laryngeal tuberculosis, and one which appeals equally to the physician and to a specialist. Phthisis seldom runs its course without symptoms referable to the larynx developing sooner or later. These symptoms *per se* may not occasion any material suffering and may not call for any special treatment, but at the same time, if recognised and understood, they afford a clue to the early recognition of incipient disease at a time when the trained ear may be left in doubt. Although one would be reluctant to go so far as to state that 50 per cent. of cases of phthisis are overlooked when they first come under observation, it is a matter of common knowledge that the thoracic signs are not sufficiently marked to permit of a positive diagnosis being made at a time when a definite opinion would be most helpful. Later, when the thoracic signs permit of such an opinion being given, then another lobe of the lung or the other lung is already involved.

Whilst the laryngeal symptoms incidental to quite the earliest stages of pulmonary phthisis have been recognised clinically for some time past, the tendency has been to speak of them as *præ-tuberculous*—a misleading term. In describing the pathogenesis of infection of the larynx, it will be shown that so-called *præ-tuberculous* changes are brought about by definite pathological processes, which are themselves the direct outcome of infection with the tubercle bacillus, and therefore must be held to be, although indirect, nevertheless objective evidence of pulmonary tuberculosis.

There is still a further reason—and from the humanitarian standpoint, a more potent one than the preceding two—for studying the process of infection in the larynx. It enables one to learn Nature's process of arresting the disease and thereby the principles of treatment. It is to the surgical treatment and to its limitations that I shall more particularly direct attention. On this subject there have been the widest oscillations of opinions from therapeutic nihilism to extreme surgical measures unrestrained by scientific principles, and back again to therapeutic nihilism. The multiplicity of remedies is

in itself evidence of a lack of first principles upon which treatment should be based. A knowledge of such principles can only be arrived at by work in the *post-mortem* room and in the laboratory. "Nature is kinder than the doctors sometimes think"—the trite remark of Oliver Wendell Holmes, receives no greater force than in its application to the so-called surgical treatment of tuberculosis of the larynx. In opening a discussion on the subject at the annual meeting of the British Medical Association at Leicester, in 1905, I pleaded for the conservation of the larynx by rational therapeutic and surgical treatment based on scientific research. At the Portsmouth meeting of the Association, in 1899, I demonstrated that pachydermia laryngis constituted Nature's process of arresting the disease. When it does not exist it has to be induced, and how it may be induced I will describe when I come to speak of the treatment. From the foregoing it is apparent that a knowledge of pachydermia laryngis is essential to the proper conduct of the treatment of these cases. Pachydermia laryngis constituted a separate research. The complete results of that research it is my intention to publish at an early date.

THE LARYNX.

It will be generally gathered from what has been said that the larynx affords exceptional opportunities for the study of infection and development of tuberculosis within the human body, and of the action of the bacillus upon the various tissues. The next question we have to consider is whether the larynx is sufficiently often infected to permit of it being used as a basis for the investigation.

The old nomenclature has done much to militate against the uniform compilation of statistics. Such terms as "consumption of the throat," "laryngeal phthisis," reflect the narrow and erroneous view which has been held, that there is a phthisis which begins and ends with laryngeal disease. Laryngeal tuberculosis is not an entity. Primary tuberculosis of the larynx is a pathological phenomenon which, when dealing with the pathogenesis of the disease, I shall show to be a negligible quantity. When the larynx is infected with tubercle the disease is already established in the lung. The old nomenclature has retarded a correct understanding of the treatment of the disease; it is now historical, and it is better to abandon unscientific terms, which have nothing in their favour excepting popularity.

Louis ("Recherches sur la Phthisie," Paris, 1825, and quoted by

Sir Thomas Watson) found the larynx involved in 20 per cent. of *post-mortem* examinations performed in cases of phthisis.

Pollock, in his work, "The Elements of Prognosis in Consumption," 1865, and quoted by Marcell in a paper communicated to the Royal Medical and Chirurgical Society in 1875, states that the larynx is affected in 8·66 per cent. of all cases of phthisis.

Heinze (*Die Kehlkopfsschwindsucht*, 1879), in the *post-mortem* examination of 1226 cases of phthisis found ulceration of the larynx in 376, *i.e.* 30·6 per cent.

Morell Mackenzie, out of 100 cases in the second and third stages of pulmonary tuberculosis found changes in the larynx in seventy-one.

Schaffer, who appears to have examined the larynx in all stages of pulmonary tuberculosis and to have noted all changes, found the larynx affected in 97·4 per cent.

Osler ("Principles and Practice of Medicine," 1895), puts the frequency of tuberculosis of the larynx at from 18 to 30 per cent.

This divergence of opinion as to the frequency of laryngeal tuberculosis is to be accounted for partly by some of the observers basing their statistics upon observations in the dead-house, where the more gross and destructive processes only are apparent, and partly by other observers having too closely followed the preconceived views of former writers about the nature of the disease. This is evident from the definitions of the disease that have been given.

Morell Mackenzie ("Diseases of the Throat," 1880, vol. i, p. 365), defines laryngeal phthisis as a chronic affection of the larynx attended by tunefaction and ulceration of the softer structures, and frequently by perichondritis and caries of the cartilages, arising from the local deposit of tubercle, which, as far as experience goes, is invariably preceded by a similar condition of the lungs.

Krishaber and Peter, writing in the *Encyclop. d. Sci. Med.*, in 1868, defined tuberculosis of the larynx as an "ulcerous disease of the larynx of a tuberculous nature, occurring during the progress of pulmonary phthisis, and occasionally preceding it."

Niemeyer ("Text-Book of Medicine," vol. i, p. 41, 1869) went so far as to teach that the diagnosis of laryngeal tuberculosis should not be made without signs of tuberculosis in the lungs to substantiate it.

So it is that the lesions are commonly summed up under the term

"laryngeal phthisis," which is regarded as a tuberculous process, consisting of infiltration and ulceration, occurring in about 30 per cent. of chronic cases of phthisis in their final stage. True it is that mention is made of a pallor and anaemia of the larynx occurring at times in the earlier stages, and that the voice may be lost for a while from functional failure, but these changes are not regarded as coming within the range of laryngeal tuberculosis, but rather as part of a chronic laryngitis, which presents nothing characteristic.

In other words, the impression created is that the part played by the larynx in pulmonary tuberculosis is ignored until the process has advanced to the stage of so-called "laryngeal phthisis." The term is mentioned to condemn it. It by no means fully states the case for the larynx. Changes can be detected at an earlier stage and far more frequently than the clinical associations of the term would lead one to credit.

THE CLINICAL RESEARCH.

I now proceed to details of the research into tuberculosis of the larynx. In the present article I will confine myself to the clinical aspect of the larynx. The research, whilst concerning itself with an investigation of the entire matter of laryngeal tuberculosis was mainly directed towards the condition of the larynx in the earlier days of pulmonary tuberculosis.

It was therefore all important to have a standard of health—a control image mentally to work by. This was obtained by examining a very large number of patients in whom the larynx was presumably normal. It is interesting here to remark that in my search for the normal standard I at times unexpectedly stumbled across departures from the normal giving clues to pulmonary tuberculosis when little expected.

Another important point to be quite sure about was whether the earlier changes, which I am about to describe in detail, occurred only in the larynges of people suffering from pulmonary tuberculosis. To ascertain this all the available clinical aids were resorted to. Some of the cases were under observation as far back as 1893, so that time has been the means of clearing up doubts which existed in some cases about the pulmonary condition. The larynx was examined for control purposes, not only in presumably healthy subjects, but also in subjects of pulmonary disease other than tuberculosis, such as emphysema, chronic bronchitis, fibroid

phthisis, bronchiectasis, with results that afforded further evidence of the larynx in the subjects of phthisis presenting a clinical picture *sui generis*.

The clinical conclusions of this research are based upon 359 consecutive cases of phthisis. The results of the examinations of the lungs and the larynx were noted in each case. These clinical observations are appended in tabular form with notes explanatory of the signs and abbreviations used in the tables.

In compiling and tabulating the cases from my note books it was found convenient to classify the condition of the lungs in four groups :

A. Those cases in which the lungs yielded no morbid physical signs, or, if present, were masked entirely.

B. Those in which the lungs yielded doubtful morbid signs.

C. Those in which the lungs yielded positive morbid signs.

D. Those in which the lungs yielded signs of advanced disease.

Of the 359 cases 31 fell to Group A, 88 to Group B, 199 to Group C, and 41 to Group D.

The difficulty, when any, is, of course, with Groups B and C; What signs may be regarded as doubtful and what as positive evidence ? This must depend upon a matter of opinion and experience, and also upon one's sense of hearing, and herein lies the crux of the whole question—the fallibility of physical signs at the moment when one can be of service by being positive. When one is left entirely to one's own powers of clinical observation to decide positively whether a person is or is not the subject of pulmonary tuberculosis, what is the minimum evidence, in the way of physical signs, on which one may decide ?

The points in the larynx to which attention was given were as follows :

(1) Sensation of the soft palate—hypæsthesia and hyperæsthesia. Anomalous sensations referred to the larynx.

(2) Colour changes—anaemia, hyperæmia.

(3) Vocal function—characters of the cough.

(4) Impaired movement of the cords.

(5) Edema and infiltration—tumefaction. Changes in the contour in (a) the interarytænoid region, (b) the arytaenoids, (c) the ventricular bands (false cords), (d) the epiglottis, (e) the true cords, (f) the ary-epiglottic folds.

(6) Ulceration.

In compiling and tabulating the cases I have found it convenient to arrange them also in four groups :

A. Those in which the larynx presented in the mirror no change.

B. Those in which the larynx presented in the mirror changes which would not be present to the naked eye *post mortem*—e. g. changes in colour, impaired movement of the vocal cords.

C. Those in which the larynx presented evidence of infiltration, thickening or oedema, but without a breach of the epithelium.

D. Those in which the larynx presented (in addition to, or apart from, changes in Groups B and C) evidence of ulceration and destruction of tissues.

The larynx was examined in 359 consecutive cases of pulmonary tuberculosis, of these: 9 fell to Group A, 55 to Group B, 261 to Group C, 34 to Group D. That is to say, changes occurred in the larynx in 350 out of 359, or 97 per cent.

The following table gives the number of cases in the several classes of laryngeal changes side by side with the pulmonary changes.

Larynx.	Lungs.			
	A	B	C	D
A. 9	0	4	5	—
B. 55	4	18	28	5
C. 261	23	61	144	33
D. 34	4	5	22	3
—	—	—	—	—
359	31	88	199	41

First of all I shall describe the signs and symptoms of laryngeal tuberculosis as far as possible in the chronological order in which clinically they occur.

Group B, Column 22 in the Tables.

Cases in which the larynx presented in the mirror changes which would not be present to the naked eye post mortem, e. g. changes in colour, impaired movement of the vocal cords, Columns 11 and 12.

Changes in the sensibility of the mucous membrane covering the soft palate, pharynx and larynx—hyperaesthesia, hypaesthesia, paräesthesia.

Changes in the blood supply to these parts: hyperæmia, ischæmia (or anaemia).

Changes in the vocal functions, impaired mobility of the vocal cords. These changes are often associated with one another and may be conveniently taken together.

Hyperæsthesia ; Hypæsthesia ; Paræsthesia.

Inasmuch as these three symptoms are subjective, and it is difficult to establish a normal standard of sensibility for these parts, too much significance can readily be attached to them if taken alone as a clue to disease, but all the same in regarding them as evidence only of "functional" or "hysterical aphony," one is apt to miss an important clue and to make a serious error.

Hyperæsthesia, or pain, at times is referred to the larynx without the presence of obvious lesions to account for it. It is as well to bear in mind that although the laryngoscope can detect minor changes in the larynx more readily than the stethoscope can in the lungs, at the same time there are parts of the larynx which cannot be readily brought into view; a minute ulcer or granulation may exist in the inter-arytænoid folds below the level of the cords and escape detection, and yet be quite sufficient to account for the pain complained of.

Hypæsthesia.—In the case of the soft palate, hypæsthesia, or diminished irritability, is certainly met with, and may be a premonitory sign of the lungs threatening to yield physical signs of tuberculosis. It was forcibly brought under my notice by the tolerance of such subjects to a first laryngoscopic examination. This can in no way be regarded as a scientific test, for the degree of tolerance must in some measure be determined by the skill of the laryngoscopist. This hypæsthesia was found associated with anaemia of the soft palate. It may be stated that, unless the subject is intentionally hostile to laryngoscopy, the more pallid the soft palate the greater is the tolerance to laryngoscopy.

As the pulmonary disease progresses the anaemia passes off and the tolerance becomes less.

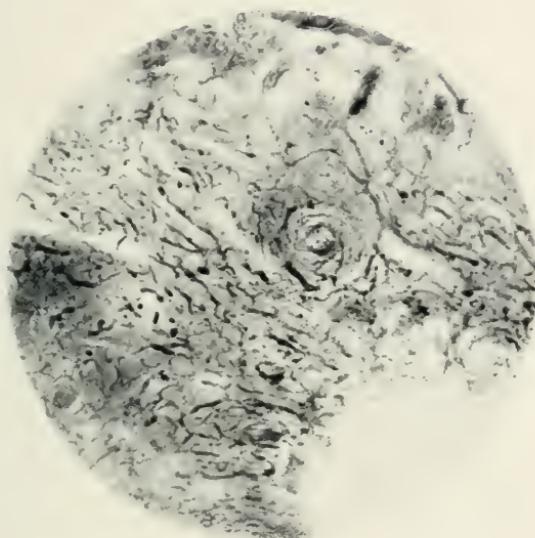
Anæmia ; Hyperæmia (Catarrh of the Laryngeal Mucosa).

Anæmia of the laryngeal mucosa was noted as present in varying degrees in 157 out of the 359 cases. Anaemia, when marked, was universal in its distribution, but if existing in a minor degree then patchy, and more particularly obvious along the crescentic edge of the epiglottis, the summits of the ventricular bands and the arytenoid eminences, the vocal cords, the vocal processes, and the mucosa covering the cricoid cartilage, in other words, at points where the mucosa was subject to tension.

What diagnostic value is to be attached to this anaemia or

PLATE I.

FIG. 1.



A photograph of a microscopic section from a larynx in an early stage of tuberculosis. The section shows the proliferation of blood-vessels around a deposition of tubercle.

TO ILLUSTRATE A PAPER BY DR. JOBSON HORNE ON "THE CHANNELS OF INFECTION IN TUBERCULOSIS OF THE THROAT, NOSE, AND EAR, AND THE PART PLAYED BY THE LYMPHATIC GLANDS IN ARRESTING, MODIFYING, OR PROPAGATING INFECTION, AND IN PREVENTING RECURRENCE OF THE DISEASE."

pallor? Is it to be regarded as a part of a general anaemia or cachectic state? Is it more frequently met with in women than in men? It was observed in 67 out of 168 male cases and in 90 out of 191 female cases, so that these figures give an equal ratio of 40 per cent. As has already been said it is often associated with impaired sensation, and when at all marked I am inclined to look upon it as an early and important premonitory sign of pulmonary tuberculosis, more particularly when it is associated with loss of flesh.

Hyperæmia was noted in 117 cases out of 359; 56 of these were in males and 61 in females, *i.e.* 33 per cent. males and 31 per cent. females.

Has acute laryngitis in a tuberculous subject any feature by which it can be distinguished from that in a non-tuberculous subject? I have not noted any. Nor have I satisfied myself that the larynx in tuberculous subjects is more prone, as has been stated, to acute inflammation. I can readily understand that when acute laryngitis does occur it is more persistent, and liable to pass into a chronic state, often associated with an unsuspected pulmonary tuberculosis. An acute laryngitis which does not completely clear up but remains localised is suggestive of underlying tubercle.

The hyperæmia, however, must be regarded as a feature distinct from and not amounting to acute laryngitis. Acute laryngitis did not occur so frequently as one might previously have expected. The hyperæmia is transient and due to a proliferation of blood vessels (Plate I, fig. 1). Unlike acute laryngitis it often rapidly gives way to a pallor, to be explained by the secondary œdema producing localised bleaching.

Loss of Lustre or Sheen of the Laryngeal Mucosa.

Amongst the changes met with in the larynx of a person smitten with pulmonary tuberculosis, there is one which has not received the attention to which, owing to its constancy and distinctiveness, it is entitled. I refer to a dulling of that characteristic sheen and lustre of the laryngeal mucosa, more especially over the vocal cords. The cords lose that semi-translucent mother-of-pearl sheen and present a semi-solid opaque pallor more approaching a dead ivory white.

This lustre of the mucosa is maintained by the muciparous glands discharging their contents on to the surface. For the proper lubrication of the vocal cords these glands are in greater

number along the anterior and posterior parts of the cords and the ventricles, the latter discharge their secretion into the sacculus laryngis, which is compressed by the arytaeno-epiglottideus inferior muscle (compressor sacculi laryngis of Hilton), and the contents is poured upon the vocal cords. This may be seen in the mirror during the production of a note, especially on the chest register, and in greater detail by observing the cords through the stroboscope. The appearances are well shown in the accompanying photographs (Plate II, figs. 2 and 3), for which I am indebted to Dr. Musehold.

The explanation of this loss of lustre, I think, is to be attributed to a failure on the part of the muciparous glands to discharge their secretion. A study of the earlier pathological changes of the mucosa showed these glands to be choked. The prominent glands, owing to the mucosa being stretched over them, at times have a yellowish-white appearance. At a later stage the contents may caseate and small ulcers form where the contents are discharged. They have been described as miliary tubercles, but under the microscope it is difficult to demonstrate histological tubercle. I am inclined to regard them as peculiar to the tuberculous subject.

The failure on the part of the glands, in tuberculous subjects, to discharge their contents is to be attributed to a loss of tone in the intrinsic muscles. This myopathic condition I also regard as peculiar to tubercle, and shall revert to it when discussing the pathology.

Vocal Function.

Changes in the vocal function occurred in 240 of the 359 cases; of these 102 occurred in males and 138 in females, *i. e.* 60 per cent. males, 72 per cent. females.

Disturbances of the vocal function were so frequently met with that they may be placed in two classes: (1) Those occurring quite early in the course of pulmonary tuberculosis, the laryngoscope showing no signs of the cords themselves, or the adjacent tissues being involved in any organic process; (2) those in which the vocal changes could readily be accounted for by organic lesions, *e. g.* tumefaction, infiltration.

In the former class the changes were usually transient, and did not as a rule amount to more than a weakness of voice or loss of tone. In such cases the production of voice called for a greater effort, there was a forgetfulness of office, so to speak, on the part of the cords, sluggishness of one or both to act, phonatory waste

PLATE II.

FIG. 2.

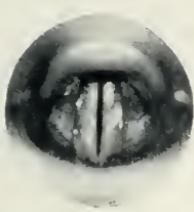


FIG. 3.



FIGS. 2 AND 3.—Photographs of the vocal cords taken during the production of a note in the "head" and "chest" registers respectively. The white streaks indicate the deposition of mucus on the cords, which is in proportion to the muscular tension and is more marked in Fig. 3. To illustrate a function of the ventricles of the larynx.

FIG. 4.



FIG. 5.



FIGS. 4 AND 5.—Photographs taken during life of the larynx of a subject of pulmonary tuberculosis.

Fig. 4 shows a tuberculoma in the inter-arytaenoid space; it is situated a little to one side of the middle line; there is also infiltration and thickening of the epiglottis and of the right ary-epiglottic fold.

Fig. 5 is a photograph of the same larynx after treatment.

TO ILLUSTRATE A PAPER BY DR. JOBSON HORNE ON "THE CHANNELS OF INFECTION IN TUBERCULOSIS OF THE THROAT, NOSE, AND EAR, AND THE PART PLAYED BY THE LYMPHATIC GLANDS IN ARRESTING, MODIFYING, OR PROPAGATING INFECTION, AND IN PREVENTING RECURRENCE OF THE DISEASE."

before voice was produced. The singing voice may suddenly go ; this alone may be the cause of the patient seeking advice, and the possibility of commencing tuberculosis should not be forgotten. The changes in the vocal function is a phase in early tuberculosis subject to fluctuations ; at times the tale will be that as the voice returns the cough develops, and at times *vice versa*. Transient dysphonia was more commonly met with amongst women, and especially young married women during pregnancy.

It is important to bear in mind that the aphonia in early pulmonary tuberculosis is often intermittent and of a character suggesting "hysterical aphonia," leaving and returning from time to time without any apparent cause. This condition is met with in male phthisical subjects, in no sense "hysterical." I have now seen sufficiently often cases of so-called "functional" or "hysterical aphonia," in which thoracic signs of tuberculosis subsequently have been made out to lead me to examine the thorax carefully in all such cases.

In the second class the aphonia or dysphonia was more pronounced and persistent, varying only in degree commensurable with the structural changes. Besides, in this group as a rule other evidence of a positive nature of pulmonary tubercle was not wanting, so that the changes in the vocal function were of less diagnostic value.

It has been held that the interarytaenoid excrescences, which I shall fully describe, are a mechanical cause of aphonia, by jutting out and preventing the arytaenoids from approximating and closing the glottis. Although they may be so, they are not of necessity a mechanical hindrance, inasmuch as at times these excrescences are above the level of the cords. However, as a rule the lesions in the cords in such cases are alone ample to account for the hoarseness and loss of voice.

The cause for the impairment of the vocal function in the first class, however, deserves some further consideration. I refer to such cases of aphonia or dysphonia in which the larynx—excepting anaemia—presented no changes in the mirror during quiet respiration.

Is this transient condition of paresis to be regarded as neuro-pathic or myopathic ? An argument in favour of it being neuropathic was furnished by Marce—viz. : That the nerve supply to the lungs and intrinsic muscles of the larynx is derived from a common source, the tensors or crico-thyroid muscles being supplied exclusively by the superior laryngeal nerve, all others by

the inferior or recurrent laryngeal nerve. Both nerves arise from the pneumogastric, and are distributed to the lungs; all these meet in the ganglion on the root of the track of the pneumogastric. An abnormal state of the lungs and a deficient state of nutrition weakens the function of the laryngeal nerves by a reflex action through the ganglion.

An objection to this argument is that although right, it holds good for all abnormal states of the lungs, but these forms of paresis are met with, so far as I have gone, only in tuberculosis, or more frequently in tuberculosis.

Another argument adduced in favour of a neuropathic origin is that the recurrent laryngeal nerve is implicated on the right in an apical pleurisy, and on the left in enlarged glands. In such cases of paralysis of the cord we might expect to meet with physical signs at the apex.

The right apex yielded signs in 13 out of 19 cases of paresis of the right cord.

The left apex yielded signs in 11 out of 28 cases of paresis of the left cord.

The left apex only yielded signs 3 times when the right cord was paretic.

The right apex only yielded signs 14 times when the left cord was alone paretic.

Of the 5 occasions when the right cord was paralysed or fixed the right apex yielded signs 4 times.

On the 3 occasions when the left cord was fixed the left apex yielded signs 3 times.

An argument against the neuropathic origin is that the paresis is too often unilateral, whereas the muscles controlled by the nerves are bilateral in their action. Moreover, it is important to note that whilst functional aphonia due to "hysteria" yields to electricity, yet in early tuberculosis electricity fails to restore voice.

From my own researches I have arrived at the conclusion that whilst a general loss of tone may, in some measure, be the cause of these transient attacks of paresis, yet it does not account for all, or for the more persistent cases. I am of the opinion that they are myopathic and not neuropathic in origin, and in support of this opinion I am able to submit histological evidence. In narrating the pathological aspect of my research I shall mention that in even the earlier stages of tuberculosis one may observe, under the microscope, in the intrinsic muscles a myositis, at times very diffuse. This myositis, as distinct from a tuberculous destruction of the

muscles, so far as I know, has not been described. It may exist without occasioning any changes to be observed clinically other than the various forms of paresis of the cord.

Group C, Column 23 in the Tables.

Cases in which the larynx presented evidence of infiltration, thickening, or œdema, but without a breach of the epithelium.

Œdema ; Infiltration ; Tumefaction.

Changes in the contour in (a) the interarytænoid region, (b) the arytaenoids, (c) the ventricular bands (false cords), (d) the epiglottis, (e) the vocal (or true) cords, (f) the ary-epiglottic folds.

I now pass to consider the appearances met with in the mirror when the deposition of tubercle within the larynx has sufficiently advanced to cause, by œdema, infiltration and tumefaction, departures from the normal in the outline, or contour of the larynx, without there being a breach of the epithelium.

The details are given under Columns 13 to 20 in the statistical tables, and form the component parts of Group C, in Column 23.

To assist me in making my points more readily understood, I may, perhaps, be allowed here to define the limits of the various parts of the larynx to which reference will be made.

The *epiglottis* will be referred to as consisting of a free, crescentic edge and a base or petiole. The edge terminates where the ary-epiglottic ligaments commence. The base or petiole lies between the anterior commissure, the free edge, and an imaginary line passing from the receding angle of the anterior commissure to the junction of the edge with the ary-epiglottic ligaments. The lower part of the petiole forms the cushion of the epiglottis.

The *vocal cord* is divided into three parts by the insertion of a small cartilaginous sesamoid body in the anterior third, and by a similar and somewhat larger cartilaginous body, which forms the "vocal process" at the junction of the middle and posterior thirds. The part of the cord between these two sesamoid cartilages may be regarded as distinct from the anterior and posterior parts of the cords on histological, physiological, and pathological grounds. It differs histologically inasmuch as it is covered with squamous and not columnar epithelium; it is more ligamentous, and glandular structure is not met with in it so near to the surface. Physiologically

it is more essentially the vibratory and tone-producing portion of the cord. Pathologically it is not infected by tubercle excepting by *continuity* from adjacent structures.

The *ventricular band* lies in a plane parallel to and above the true cord and vocal process, passing upwards from the vocal process and terminating between the cartilages of Santorini and Wrisberg in a furrow in the mucous membrane, which I have found to be a site for infective processes to commence in the larynx.

To the *sacculus laryngis*—laryngeal pouch or *ventricle*—I have already referred to as a site of infection.

The *interarytænoid space* may be regarded as lying between the extreme posterior ends of the vocal cords. It plays a most important part in the infection of the larynx.

I have stated that out of 359 consecutive cases of pulmonary tuberculosis the larynx presented signs of oedema and infiltration in 261.

Twenty-three of these 261 cases yielded no thoracic physical signs, and sixty-one yielded only doubtful signs of pulmonary disease. The cases, classified according to pulmonary signs, fell as follows: 23 to Group A, Column 5; 61 to Group B, Column 6; 144 to Group C, Column 7; 33 to Group D, Column 8.

In order to appreciate the earliest departures from the normal in the contour of the larynx it was necessary to possess mentally a control image to work by. This was obtained, as stated above, by examining 500 people with presumably normal larynges. It was then found that in the earlier stages of phthisis the different parts of the larynx presented infiltration and oedema in varying degrees, as follows:

Epiglottis, free edge	.	.	in 30 cases.
" petiole	.	.,	3 "
Ventricular bands, bilaterally	.	.,	57 "
" " right only	.	.,	6 "
" " left only	.	.,	3 "
Arytænoid eminences, bilaterally	,	139	"
" " right only	,	10	"
" " left only	,	5	"
Interarytænoid space	.	.,	176 "
Vocal cords (posterior third)	.	.,	12 "

The parts containing more subepithelial tissue, and less subject to local pressure or attrition, more frequently presented oedema in the following order: the interarytænoid space, the arytenoid eminences, the ventricular bands, the free edge of the epiglottis.

PLATE III.

FIG. 6.



FIG. 6.—A photograph of a section cut horizontally through the larynx immediately above the level of the vocal cords. In the inter-arytaenoid region there is a deposition of tubercle projecting the superjacent epithelium forward and forming a typical inter-arytaenoid excrescence. It is situated to one side of the middle line.

FIG. 7.



FIG. 7.—Photograph of a specimen of pachydermia laryngis simplex viewed from above and showing the inter-arytaenoid region with the vocal cords below. The inter-arytaenoid excrescence is central and an exaggeration of pre-existing folds, so that the inter-arytaenoid fissure is maintained, but exaggerated.

TO ILLUSTRATE A PAPER BY DR. JOBSON HORNE ON "THE CHANNELS OF INFECTION IN TUBERCULOSIS OF THE THROAT, NOSE, AND EAR, AND THE PART PLAYED BY THE LYMPHATIC GLANDS IN ARRESTING, MODIFYING OR PROPAGATING INFECTION, AND IN PREVENTING RECURRENT OF THE DISEASE."

It will be noted in the table given above that the interarytænoid space presented departures from the normal in 176 out of 359 consecutive cases of phthisis—a clinical observation deserving of the closest attention. A fine crenating or fringing occurs upon the folds of mucous membrane in the interarytænoid space, occasioned by the deposition of tubercle in the submucosa.

More rarely there develops in this space an excrescence or tuberculoma; this is illustrated in Plate II, figs. 4 and 5, and for these two photographs also I am desirous of expressing my indebtedness to Dr. Musehold, who has done so much to improve the technique in obtaining photographs of the larynx in the living subject. At times it is necessary to discriminate these from similar growths of a non-tuberculous nature. Both have this in common, that they are brought about by pachydermatous changes in the epithelium, that is to say, the epithelium undergoes a hyperplasia and a metaplasia. In the simple variety (*pachydermia verrucosa simplex*) the excrescence is an exaggeration of pre-existing parts, so that the natural central furrow in the interarytænoid region is maintained in the growth, and the growth is a symmetrical one occupying the centre of the interarytænoid space. In the tuberculous variety (*pachydermia verrucosa tuberculosa*) the growth does not occupy a central position; it is usually developed more on one side of the space and the central furrow is lost.

This point in differential diagnosis is brought out in the photographs of specimens in Plate III. Fig. 6 is from a case of laryngeal tuberculosis, whilst fig. 7 is from a case of simple pachydermia.

An early but transient loss of symmetry in the outline of the arytenoid eminences frequently occurs. The ventricles become less patent, and this loss of patency is due to œdema of the ventricular band. A slight œdema of the ventricular band, together with enfeebled action of the compressor sacculi laryngis, must effectually assist in incarcerating tubercle bacilli within the ventricle when once they have been injected in the act of coughing. These changes in the contour are often transient, and are in great measure influenced by the subepithelial vessels.

Group D, Column 24 in the Tables.

Cases in which the larynx presented (in addition to, or apart from, changes in Group C), evidence of ulceration and destruction of tissue.

Ulceration and Destruction of the Larynx.

Clinical and pathological investigations into the lesions in the larynx occurring in the course of pulmonary tuberculosis have been mainly concerned hitherto with the ulcerative and obstructive processes summed up under the term "laryngeal phthisis." In my investigation cases presenting such gross changes were placed in a group by themselves, but inasmuch as the research is directed towards ascertaining the precise manner in which the larynx becomes infected and the tuberculous process subsequently develops, as well as the earliest clinical phenomena by which it may be detected, I do not propose to enter into a consideration of the more gross changes, for in doing so I should only be recapitulating a good deal of what has already been written by other observers. However, I may, perhaps, be allowed to briefly state in order of frequency the regions I found to be the sites of ulceration.

The two most frequent sites may easily escape clinical notice. The most common site, by a long way, I found to be immediately behind the vocal process on the glottic aspect of the arytaenoids. The next in order of frequency was the glottic aspect of the interarytænoid space, the third was the edge of the epiglottis, the fourth the ventricular bands, the fifth the cushion of the epiglottis, and the sixth that portion of the cord between the two sesamoid bodies. Upon comparing these with the statistics relating to infiltration it will be found that they do not altogether agree. In a word, a site of infiltration does not of necessity so readily become the site of ulceration, some parts of the larynx being more resistant than others to ulceration. The tuberculous process less readily leads to a breach of the epithelium in parts where the sub-mucosa is lax and abundant, whereas paucity of subepithelial tissue is conducive to superficial ulceration, hence the mouse-nibbled appearance the laryngeal aspect of the epiglottis readily assumes when it is infiltrated.

The interarytænoid region and the posterior thirds of the vocal cords—that is, just in the neighbourhood of the cartilage forming the vocal process—are more subject to stress and strain, and more prone to ulceration.

CLINICAL TABLES OF THE FIRST SERIES OF 359 CONSECUTIVE CASES.

Explanations of the Signs and Abbreviations used.

The clinical facts of each case are given in a line, reading across two pages. Where a subsequent examination elicited further and material facts, these are given in a second line.

Column 1 gives the numbers of the cases, which run consecutively from 2 to 367. Where further investigation and subsequent history showed that the patient was not suffering from tuberculosis the case was removed entirely from the statistics, hence the omission of Nos. 1, 8, 37, 82, 86, 189, 216, 241, and 259.

Column 2 gives the sex.

Column 3 gives the age.

Column 4 indicates any family history of consumption on the mother's or on the father's side, or on both sides.

Columns 5, 6, 7, and 8 relate to the conditions of the lungs under four groups, as defined in the text. The multiple sign (x) is placed under the lung affected.

Column 5, Group "A." Those cases in which the lungs yielded no morbid physical signs, or, if present, were masked entirely.

Column 6, Group "B." Those cases in which the lungs yielded doubtful morbid signs.

Column 7, Group "C." Those cases in which the lungs yielded positive morbid signs.

Column 8, Group "D." Those cases in which the lungs yielded signs of advanced disease.

Column 9 gives any history of pulmonary haemorrhage, a definite haemoptysis being indicated by a capital "H," a slight haemorrhage, perhaps not amounting to more than a staining of the sputum, by a small "h." Epistaxis = "e."

Columns 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24 relate to the condition of the larynx.

Column 10 indicates whether the voice was affected.

Column 11 indicates any colour changes in the laryngeal mucous membrane, "p" being used to indicate pallor and "r" reddening.

Column 12 relates to impairment of the mobility of the vocal cord, a "P" being used to indicate paralysis, and a small "p" to indicate paresis, the letter used in either case being placed under the cord affected.

Column 13 gives the condition of the epiglottis. In this column, and also in the subsequent columns from 13 to 20 inclusive, the plus sign (+) is used to indicate infiltration, thickening, or oedema of the part; the minus sign (-) being used to indicate ulceration or destruction of the part. When both lesions were present both signs are used.

Column 14 gives the condition of the arytenoid regions.

Column 15 gives the condition of the interarytenoid space.

Column 16 gives the condition of the aryepiglottic folds.

Column 17 gives the condition of the ventricular bands or false cords.

Column 18 gives the appearances at the vocal processes, *i.e.* at the junction of the middle and posterior thirds of the vocal cords.

Column 19 gives the appearances of the middle part of the vocal cords, *i.e.* between the anterior and posterior sesamoid cartilages.

Column 20 relates to the condition of the anterior and posterior thirds of the vocal cords.

Columns 21, 22, 23, and 24 summarise the condition of the larynx under the four groups, as defined in the text.

Column 21, Group "A." Cases in which the larynx presented in the mirror no change.

Column 22, Group "B." Cases in which the larynx presented in the mirror changes which would not be present to the naked eye *post mortem*, *e.g.* changes in colour, impaired movement of the vocal cords.

Column 23, Group "C." Cases in which the larynx presented evidence of infiltration, thickening, or oedema, but without a breach of the epithelium.

Column 24, Group "D." Cases in which the larynx presented (in addition to, or apart from, changes in Group "C") evidence of ulceration and destruction of tissue.

Column 25 gives the duration of the history of the case in years and fractions of years.

Column 26 repeats the number of the case for assistance in reading across the pages.

The last column gives information about the occupation of the patients, and other incidental factors in the cases.

1 No.	2 Sex.	3 Age.	4 M. F.	Lungs.					Larynx.						
				5 A.	6 B.	7 C.	8 D.	9 H.	10 V.	11 C.	12 P. or p.	13 e.	14 a.	15 i. a.	
2	F.	28	x	R.	L.	R.	L.	R.	x	p.	R.	L.	R.	+	+
3	M.	14		x				x						+	+
4	F.	26						x		p.	p.	p.		+	+
5	F.	34						x		p.	p.	p.		+	+
6	M.	34						x		p.					+
7	M.	19			x			x		p.	P.			+	+
9	F.	32	x				x						+	+	+
10	M.	24	x			x	x						+	+	+
11	M.					x	x			p.	p.				+
12	F.	37			x	x									
13		26	x x		x	x					r.			+	+
14	F.	24	x			x			x					+	+
15	M.	26	x		x						p.	(r.)		+	+
16	M.	27					x			(x)	(r.)		+	±	+
17	M.	19	x		x		x				p.			±	±
18	M.	31					x		x		p.			±	±
19	M.	37					x		x		x	p.		+	+
20	M.	26	x			x			x		H.	p.			+
21	M.	43					x				H.	r.		+	+
22	M.	41				x	x							+	+
23	M.	27				x						x	r.		+
24	F.	19	x x x x											(+)	(+)
25	F.	32	x			(x)							x	p.	exc. +
					x									(p. p.)	exc. +
26	M.	26	x				x				H.				+
27	M.	42	x			x	x				H.	x	p.	p.	+
28	F.	32	x			x					H.	x	p.	p.	+
29	F.	34			x							x	(p.)		+
30	M.	30				(x)		x				x	r.		+
31	M.	24	x					x					(p.)		less.
32	M.		x				x						r.		
33	M.	18			x								r.		
34	M.	25			x									p.	+
35	F.	32		x x			x				H.	x	r.	p.	+
36	F.	17	x x x				x		x		H.	x	p.		+
38	F.	27			x						H.		p.	p.	+
39	M.	31				x					H.	x	r.	p.	+
40	M.	23				x					H.	x		(p. p.)	+
41	F.	24				x					H.	x			+
42	F.	15	x		x								p.		+

Larynx.

16 a. e.	17 v. b.	18 v. p.	19 l. c.	20 c. c.	21 A.	22 B.	23 C.	24 D.	25 Duration, Years.	26 No.	Occupation.	Remarks.
R. L.	R.	L.	R. L.	R.	L.	R.	L.			2		
								x				
									x	2		
								x	x	2	3	Bricklayer.
								x	x	2	4	
								x	x	2	5	
								x	x	1	6	
								x	x	2	7	
								x	x	3	9	
								x	x	1	10	
								x	x	2½	11	
								x	x	7	12	Married; 5 children.
											13	
									x		14	Artificial flower worker.
									x		15	Tertiary syphilis. ●
±	+							x		1	16	
								x		2 wks.	17	Scientific engineer.
								x		3	18	
								x		½	19	Carriage painter.
								x		8	20	Married; 2 children.
								x		5	21	
								x		1	22	Rag trade packer.
								x	x	½	23	
								x	x	½	24	Bookfolder; single.
								x		5	25	Gin drinker; married 6 years; 3 children.
								x		5	26	
								x		½	27	Clay tobacco pipe maker.
								x		½	28	Married 14 years; 5 children; sister to No. 90.
								x		½	29	Married 14 years; 4 children.
								x		2	30	
								x	x	2	31	Porter to tailor and furrier.
								x	x	1	32	
								x	x	5	33	
								x	x	5	34	Carman; wife phthisical.
								x		10	35	Married 14 years; 7 children.
								x		5	36	Single.
								x	x	10	38	Married 10 years; 5 children.
								x		1	39	Cabinet maker.
								x		½	40	Post office.
								x		6	41	Single.
								x		years	42	Single.

1 No.	2 Sex.	3 Age.	4 M. F.	Lungs.					Larynx.						
				5 A.	6 B.	7 C.	8 D.	9 H.	10 V.	11 C.	12 P. or p.	13 E.	14 a.	15 i. a.	
43	F.	22	x	R.	L.	R.	L.	x		r.	R.	L.	R.	L.	
44	F.	22					x			p.			+	+	
45	F.	25	x					x	x	p.			+	+	exc.
46	M.	36				x			H.	x	r.	p.	p.	+	+(exc. +)
47	M.	22			x						(p.) p.			+	+
48	F.	36				(x)	(x)			x	p.	p.	p.	+	+
49	F.	32				x	x			x	r.	p.	p.	+	+
50	F.	31	x	x		x				x	p.	p.	p.	+	+
51	M.	27	x				x			h.	x	r.			
52	M.	28			x		x			h.	x		p.	+	+
53	M.	20	x	x						h.	x	p.		+	
54	F.	38		x	x	x					p.			+	+
55	F.	28	x					x	x				r.		
56	F.	20	x			x						p.		+	
57	F.	34	x							H.	x	p.		+	exc.
58	M.	30				(x)	x					p.	p.	(+)	+
59	M.	32				x	x					p.	p.	+	+
60	M.	18				x	x					p.		+	+
61	M.	31		x	x									+	+
62	F.	45	x		x	x					x			+	+
63	F.	30				x	x	x	x	h.			p.	+	+
64	F.	43		x	x	x	x	x							exc.
65	F.	23	x	x	x	x	x	x		h.	x	p.	p.	+	+
66	F.	40	x	x											pyr.
67	M.	22					x	x		h.		p.		+	+
68	F.	40	x	x	x	x	x			H.		r.		+	+
69	M.	54			x					h.	x	p.		+	+
70	F.	36	x				x					p.		+	+
71	M.	40	x			x				H.	x	r.	p.	+	+
72	—	—	x			x				H.		p.		+	+
73	M.	21	x	x		x						p.		+	exc.
74	F.	47						x			x	p.	P.	(+)	(+)
75	F.	23					x	x			x	p.		+	+
76	M.	45	x				x	x		H.	x	p.	p.	+	+
77	M.	24	x	x	x					H.	x		p.	+	cren.
78	F.	24				(x)	(x)	x				p.		+	+
79	F.	36		x	x						x	p.		+	+
80	F.	19	x	x			x				x	p.		+	+
81	F.	38	x	x							x	r.		+	+
82	M.	31						x	x		(x)	x	r.	pyr.	exc.
83	M.	23	x	x				x	x			x	r.	+	cren.
84	M.	26	x	x	x						x		p.	+	cren.

Larynx.

16 a. e.	17 v. b.	18 v. p.	19 l. e.	20 c. e.	21 A.	22 B.	23 C.	24 D.	25 Duration Years.	26 No.	Occupation. Remarks.
R. L.	R.	L.	R. L.	R. L.					x	2	43
									x	1½	44
									x	3	45
+	+								x	3	46
									x	1	47
									x	½	48
									x	½	49
									x	4	50
									x	2	51
									x	years	52
									x	years	53
									x	years	54
									x	1	55
									x	12	56
									x	12	57
									x	½	58
									x	2	59
									x	years	60
									x	3	61
									x	½	62
									x	½	63
									x	4	64
									x	years	65
									x	years	66
									x	2	67
									x	5	68
									x	10	69
									x	70	
									x	1	71
									x	½	72
									x	10	73
									x	23	74
									x	1	75
									x	8	76
									x	77	
									x	3	78
									x	79	
									x	80	
									x	2	81
									x	3	83
									x	6	84
									x	6	85

1 No.	2 Sex.	3 Age.	4 M. F.	Lungs.					9 H.	Larynx.						
				5 A.	6 B.	7 C.	8 D.	10 V.		11 C.	12 P. or p.	13 E.	14 a.	15 l. a.		
87	F.	37	x	R.	L.	R.	L. R.	x	h.	x	p.	R.	L.	R.	L.	+
88	F.	21	x			x	x		h	x	p.	p.	p.	p.	p.	+
89	F.	36					x			x	p.					+
90	F.	26		x	x		x			x		p.	p.			+
91	F.	30	x	x	x				H.	x	p.	p.	p.			+
92	F.	16				x	x		h.		p.	p.	p.			+
93	M.	27			x				H.	x	p.					
94	M.	44	x				x		H.		r.					+
95	M.	16	x	x			x		H.		r.	p.	p.	+		+
96	M.	19	x	x			x	x	H.	x	r.	p.	p.	+		+
97	F.	36				x	x			x	p.	p.	p.	+		cren.
98	F.	19	x	x		x		x			p.					+
99	F.	20			x				h.		r.					+
100	F.	21	x				x			x	r.					+
101	M.	21	x				x	x	h.	x	p.					+
102	M.	25					x	x		x	r.					+
103	M.	34					x		H.		p.					+
104	F.	43		x	x						p.		P.			+
105	M.	20				x			h.		p.					+
106	M.	36			x					x	p.					+
107	M.	33	x	x			x	x	H.		p.					+
108	M.	24			x		x	x		x	p.					+
109	M.	28				x	x		h.	x	p.					+
110	M.	16	x				x			x	p.	p.	P.			+
111	M.	32	x			x				x	p.	p.				+
112	M.		x	x												
113	M.	30						x			r.					
114	M.	25	x			x					r.					+
115	F.	39	x			x				x	p.	P.				+
116	F.	20	x			x				x	p.	p.	p.			+
117	F.	17						x	x	h.	r.	p.	p.			+
118	F.	29	x				x	x	H.	x	r.	p.	p.			+
119	F.	35			x					x	p.					+
120	F.	20	x		x				H.	x	p.	p.	p.			+
121	F.	27					x			x	p.					+
122	M.	45	x			x			h.	x	r.					cren.
123	M.	26	x			x			H.	x	r.	p.	p.			cren.
124	M.	27	x				x	x	H.	x	r.					
124*	F.	29	x			x				x	r.					+
125	F.	29	x			x				x						+
126	M.	40			x	x				x						+
127	M.	23	x	x		x		x	H.		p.					+
128	F.	33	x	x				x		x	p.		P.			+
129	F.	38				x				x						+
130	F.	32				x					p.					+
131	F.	18				x				H.	x	p.				+
132	F.	37	x					x	x	h.	p.	p.				exc.
133	M.	22				x	x			H.	x	r.				+
134	M.				x		x		H.		p.	p.	P.			cren.
135	F.	44				x			H.		r.					+
136	M.	32	x	x		x					p.	p.				+

Larynx.												25 Duration, Years.	26 No.	Occupation. Remarks.
16 a. e.	17 v. b.	18 v. p.	19 l. c.	20 e. c.	21 A.	22 B.	23 C.	24 D.						
R. L.	R.	L.	R. L.	R.	L.	R.	L.		x		2	87	Book folder; cords quiver.	
									x		2	88		
									x		2 wks.	89		
									(x)		25 years	90	Sister to No. 28.	
									x		91	91	Pott's disease, active.	
									x		92	92		
									x		93	93		
									x		3	94	Hawker; wife consumptive.	
									x			95	Plumber.	
									x			96	Painter.	
									x			97	Married.	
									x			98	Ironing machine (gas); single.	
									x			99	Collar ironer.	
									x		years	100	Tin box worker.	
									x		3	101	Carman.	
									x		years	102		
									x		12	103	Boot finisher.	
									x			104		
									x			105	Coffee shop employée.	
									x			106	Shoe maker.	
									x		years	107	Gold printing.	
									x			108	Lighterman.	
									x		years	109	General dealer.	
									x			110	Painter.	
									x			111	Colourman (lead) (plumbism).	
									x			112	Lupus; died in hospital, <i>P.-M.</i> , miliary tuberculosis of lungs.	
									x			2	113	Cabinet maker.
									x			1	114	Sponge warehouseman; dust, sand.
									x		years	115	Laundry.	
									x		1 wk.	116	Laundry work.	
									x			5	117	Tea packer.
									x		years	118	Married 9 years; 6 children.	
									x		years	119	Sister to No. 118.	
									x			3	120	Married 6 months.
									x		years	121	Married 8 years; 3 children.	
									x			7	122	General labourer.
									x			a	123	Hawker.
									x			6	124	Compositor.
									x		years	124*	Married; 5 children.	
									x			1	125	Married 7 years; 2 children.
									x			1	126	Coal porter.
									x		3 wks.	127	Errand man.	
									x			.12	128	Married 3 years; 1 child.
									x			21	129	Machinist; married; 2 children.
									x			1	130	Married 16 years; 5 children.
									x			1	131	Tailoress.
									x		years	132	Married 20 years.	
									x			years	133	Waiter.
									x			1 $\frac{6}{7}$	134	Married 14 years; 1 child; 3 miscarriages.
									x			6	135	Married 28 years; 7 children.
									x		years	136	Fur cleaner; married 2 years; 2 children.	

Lungs.								Larynx.							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
No.	Sex.	Age.	M.	F.	A.	B.	C.	D.	H.	V.	C.	P. or p.	e.	a.	i. a.
137	M.	20			R.	L.	R.	L.			R.	L.		R.	+
138	M.	15	x					x						+	+
139	M.	18					x			x				+	+
140	M.	26	x				x							+	+
141	F.	52	x	x			x							+	+
142	F.	46	x					x							cren.
143	F.	11													exc.
144	M.	21		x	x		x			x	r.	p.		+	+
145	M.	32	x			x				x	r.			+	cren.
146	M.	49	x				x			x	p.			+	cren.
147	M.	30	x				x			x	p.			+	cren.
148	M.	21					x								
149	M.	23					x								
150	F.	16	x				x								
151	M.	32	x				x	x							
152	M.	23	x			x				x	r.				
153	M.	12				x	x	(x)			x	p.	p.	+	+
154	M.	59	x			x				x	p.	p.	P.	+	+
155	F.					(x)								+	+
156	M.	22	x				x	x			x	r.		+	exc. +
157	F.	34	x	x				x				r.		+	+
158	F.	29				x	x			x	p.			+	+
159	F.	17				x				x				+	+
160	F.	19			x					x	r.			+	+
161	M.	29	x			x				x				—	+
162	M.	18	x			x				x				+	+
163	M.	30					x	x				p.	p.	+	+
164	F.	16				x				x				+	+
165	M.	30	x				x			x	p.	p.	p.	+	+
166	F.	14	x			x									+
167	F.	19	x		x	x									+
168	F.	27	x			x				x					+
169	F.	25	x			x	x			x	r.			+	+
170	F.	25	x	x		x				x	p.	p.			+
171	M.	33	x			x									+
172	M.	23		x	x					x	p.		n.	+	+
173	M.	30	x				x			x	p.	p.		+	+
174	M.	34	x			x	x			x	r.	p.	p.	+	+
175	M.	28			x	x				x	r.	p.	p.		
176	F.	18					x		x	x	r.	p.	p.	+	+
177	M.	35				x				x	r.				exc.
178	M.	15	x			x				x	r.		p.	+	+
179	F.	24				x				x	r.		p.	+	+
180	F.	30	x			x				x	r.			+	+
181	F.	33	x			x				x				+	+
182	M.	21	x		x		x			x		r.	p.	+	+
183	F.	18			x					x	r.	p.	p.		+
184	M.	19				x		x		x		p.			
185	M.	30	x				x	x		x		p.	p.		cren.
186	M.	31				x	x			x					+

Larynx.												25 Duration. Years.	26 No.	Occupation. Remarks.
16 a. e.	17 v. b.	18 v. p.	19	20 c. e.	21 A.	22 B.	23 C.	24 D.						
R. L.	R.	L.	R. L.	R.	L.	R.	L.		x	2 wks.	137		Milk carrier.	
									x	4	138		Grillman.	
									x	$\frac{6}{12}$	139		Plate cleaner; syphilis at 21.	
									x	3	140		Dressmaking; married 27 years.	
									x	years	141		Married 24 years.	
									x	years	142		School.	
									x	$\frac{2}{12}$	143		Filing, soldering, metal work.	
									x	$\frac{12}{12}$	144		Tea warehouseman.	
									x	3	145		Kyphosis.	
									x	6	146		Drug grinder; belladonna very irritating.	
									x	5	147		Furniture shopman.	
									x	1	148		Beer barrel washer.	
									x	years	149		Feather curling (dust).	
									x	years	150		Dock labourer.	
									x	years	151		Porter.	
									x	years	152			
									x	$\frac{2}{12}$	153		Tin plate worker (lead).	
									x	$\frac{12}{12}$	154			
									x	2	155		Married 2 years; 1 child.	
									x	(x)	156		Electrician.	
									x	years	157		Married 15 years.	
									x	years	158			
									x	years	159		Domestic servant.	
									x	years	160		Lupus, right ear and right wrist.	
									x	years	161			
									x	years	162		Printer's warehouseman.	
									x	years	163		Bricklayer.	
									x	3 wks.	164			
									x	1	165		Ticket collector.	
									x	years	166			
									x	years	167		Dressmaker.	
									x	3	168		Married 4 years; 2 children.	
									x	4	169		Married 4 years.	
									x	years	170		Collar ironer; married 1½ years; neoplasm on right cord.	
									x	4	171		Builder's labourer.	
									x	3	172		Clerk.	
									x	4	173		Brushmaker.	
									x	$2\frac{1}{2}$	174		Potman; frequent pneumonia.	
									x	years	175			
									x	3	176		Umbrella finisher; single.	
									x	years	177			
									x	3	178		Clerk.	
									x	3	179		Married 3 years; 2 children.	
									x	years	180		Married 10 years; 4 children.	
									x	10	181		Married 15 years; 7 children.	
									x	1	182		Brass finisher.	
									x	$\frac{2}{12}$	183		Machinist; single.	
									x	years	184		Telegraph instrument maker.	
									x	3	185		Packer (dust).	
									x	1	186		Dust burner 2 years; syphilis at 19.	

[July, 1907.]

Larynx.

16 a. e.	17 v. b.	18 v. p.	19 l. c.	20 c. c.	21 A.	22 B.	23 C.	24 D.	25 Duration Years.	26 No.	Occupation. Remarks.
R. L. R.	L. R. L.	R. L.	L. R.	L.			x		1	187	Compositor.
							x		2	188	Chemical worker in mercury.
							x		2	190	Insurance agent; syphilis at 17.
							x		1	191	Umbrella work.
							x		1	192	Married 14 years; 5 children.
							x		years	193	Collar ironer.
							x	x	13	194	Tailoress; single.
							x		3	195	Bookfolding; single.
							x		22	196	Larynx typical; lungs <i>nil</i> .
							x		4	197	Mantle warehouse.
							x		3	198	Boxmaker; dysphag.
							x		$\frac{1}{2}$	199	Emery and blacklead worker.
							x		2	200	Farming.
							x	years	years	201	None; single.
							x		$\frac{6}{12}$	202	Married 9 years; 1 child.
							x		3	203	Boxmaker.
							x	years	years	204	Porter.
							x		3	205	Litho-stone polisher.
							x	x	1	206	Machine-minder.
							x	years	years	207	Artificial flowers.
							x		10	208	Married 23 years; 7 children.
							x	6 mos.	6 mos.	209	Laundryman; syphilis at 20.
							x		1	210	Turner.
							x		2	211	Corn porter.
							x		2	212	Chaff cutter.
							x		1	213	Hammerman.
							x	2 wks.	2 wks.	214	Box maker.
							x		6	215	Hawker.
							x			217	
							x			1 $\frac{1}{2}$	218 Waterside labourer unloading cement.
							x		1 $\frac{1}{2}$	219	
							x	years	years	220	
							x		years	221	
							x		2	222	Cigar maker.
							x		4	223	Seafarer; syphilis at 17.
							x	years	years	224	Night porter.
							x		2	225	
							x	years	years	226	
							x		3	227	Mantle warehouseman, cutter.
							x	years	years	228	Dusty warehouse.
							x		3	229	Electro-plater and gold-cutter.
							x	6 wks.	6 wks.	230	Boot-rivetting.
Tuberculosis of soft palate, tonsils, uvula, and pharynx											
							x			231	General servant; neurotic.
							x			232	Photograph of larynx in Museum Catalogue; Brit. Congr. Tuberculosis.
							x			233	Clerk.
							x	years	years	234	
							x		1	235	
							x		2	236	
							x		$\frac{1}{2}$	237	Cigar-box maker.
							x	6 wks.	6 wks.	238	
							x		3	239	Compositor.
											Tuberculoma laryngis.

1	2	3	4	Lungs.						Larynx.									
				No.	Sex.	Age.	M.	F.	A.	B.	C.	D.	H.	V.	C	P. orp.	e.	a.	i. a.
240	F.	33	x	x	x	x	R.	L.	R.	L.	R.	L.	L.	x	(x)	R.	L.	R.	L.
																		cren.	cren.
242	F.	21	x	x						x	x			x	p.	p.	p.		R. excr. more
243	M.	32								x	x			H.	x	p.		+	cren.
244	F.	27	x											H.	x	p.	p.		cren.
245	F.	22								x				x	p.	p.	p.		cren.
246	M.	31	x			x								H.	x	p.	p.	+	+
247	F.	18	x	x	x	x								x	p.				+
248	M.	26								x				H.	x	r.			+
249	M.	35								x	x			H.	x	r.			+
250	M.	43	x							x				H.		p.			+
251	F.	23	x			x			x					x	r.		+		cren.
252	F.	45	x	x			x							h.	x	r.			
253	F.	21	x			x	x		x					h.	x	r.	p.	p.	cren.
254	F.	26							x					H.	x				
255	F.	19	x	x	x				x					x				+	+
256	F.	54	x	x					x	x				h.				+	+
257	M.	43				x	x		x					x	r.		±	+	+
258	M.	31		x	x											p.	+		cren. -
260	F.	18	x	x	x									x		p.	p.		
261	M.	45							x							r.			
262	M.	53							x					H.	x	r.	p.	+	+
263	M.	29				x			x					x	r.	p.	+	+	+
264	F.	43		Em-	phys.									x	r.		+	+	
265	F.	22	x			x										p.		+	+
266	F.	64	x						x					H.	x	p.	p.		+
267	F.	47	x						x					h.	x	r.	p.		+
268	F.	35	x	x		Em-	phys.		x					H.	x		p.		excr. -
269	F.	28	x	x	x									x	p.			p.	
270	F.	38	x	x	x	x			x					h.	x				
271	F.	20	x						x					H.	x	p.		+	+
272	F.	16				x								x	p.	p.			exc.
273	F.	39				x	x							H.	x	p.	p.		
274	F.	27	x			x			x					H.	x	p. r.		+	+
275	F.	31							x	x					x	p. p.		+	+
276	M.	21							x					H. e.		r. p.			cren.
277	M.	29	x	x					x					h.	x	r. p.	p.		cren.
278	M.	41				x			x					H.	x				
279	M.	23				x								H.	x				
280	F.	21		x		x										p.			
281	F.	44	x	x	x											P.			
282	F.	20	x			x	x							x	p.	p.	p.		
283	F.	28					x	x						H.	x	r.			+
284	F.	31	x			x								x		p.			
285	F.	48	x	x					x	x				H.	x	r.		+	
286	F.	31	x				x	x						H.	x	r.			
287	F.	65	x			x	x		x					H.	x	r.			+

Larynx.

1	2	3	4	Lungs.					Larynx.										
				No.	Sex.	Age.	M.	F.	A.	B.	C.	D.	H.	V.	C.	P. or p.	E.	a.	i. a.
288	M.	40	x		R.	L.	R.		L.	R.	L.	R.			R.	L.	R.	L.	
289	M.	28	x						x	x				H.	x	p.	p.		+
290	M.	33								x					x				
291	F.	42	x						x	x					x	p.	p.		
292	F.	71	x						x	x					x	p.	p.		
293	M.	53	x						x	x					h.	x	p.	p.	
294	F.	8							x						x	p.			
295	F.	35	x						x	x					H.	x	p.		+
296	M.	12	x							x	x				e.	x	p.	p.	
297	F.	12	x						x	x					x	p.			
298	F.	30	x						x	x					H.	x	p.		
299	F.	34	x						x							x	r.	p.	
300	F.	22	x							x	x				H.	x	r.	p.	
301	F.	58	x						x	x	x				h.	x	r.	p.	
302	M.	38	x	x						x	x					x	p.	p.	
303	F.	33							x							x	p.		
304	F.	30							x		x					x	r.		
305	F.	21	x	x					x	x						x	p.		
306	F.	41	x						x							x	p.		
307	M.	44	x						x						H.	x	r.		
308	F.	17	x						x	x						x	r.		+
309	F.	52								x	x								
310	F.	24	x						x						e.	x	p.	r.	
311	F.	23							x							x	x	r.	p.
312	F.	55	x							x	x				H.	x	p.		±
313	M.	18								x	x				H.	n.	p.		+
314	F.	49	x	x					x						H.	x	p.		
315	F.	39	x	x					x							x	p.		+
316	F.	54	x						x								x	p.	
317	F.	35	x							x					H.	x	r.		-
318	F.	21							x		x				h.	x	p.		exc.
319	F.	20							x		x				h.	x		p.	cren.
320	F.	60	x						x	x	x				H.	x	p.		
321	F.	23	x						x		x					x			+
322	M.	29	x						x		x				H.	x			+
323	F.	29	x						x		x					x	r.		+
324	F.	26	x						x		x					x	r.		
325	F.	31								x	x	x					x	r.	
326	M.	20								x		x					x	r.	
327	F.	40	x						x		x					x	x	r.	+
328	F.	33	x						x		x					x	p.		+
329	M.	24							x	x	x				H.	x	p.		
330	M.	15							x	x	x					x	r.		excr. -
331	F.	23	x	x	x	x			x	x	x				x	x	r.		+
332	M.	17	x	x					x		x				x	x	r.	p.	+
333	F.	29	x						x		x				H.	x	p.		+
334	M.	26	x	x					x		x					x	r.		+
335	M.	16							x		x								+
336	M.	47							x		x								
337	M.	63	x						x		x					x	r.		+
338	M.	30							x		x					x	r.		
339	F.	33	x						x	x	x				H.	x	r.		+

Larynx.

16 a. e.	17 v. b.	18 v. p.	19 l. c.	20 e. c.	21 A.	22 B.	23 C.	24 D.	25 Duration. Years.	26 No.	Occupation. Remarks.
R. L. R.	L. R. L. R.	L. R.	—	L.				x	x	288	Knife grinder; file cutter.
								x	5	289	
								x	years	290	French polisher.
								x	years	291	Married 15 years.
								x	years	292	Quiescent since girlhood.
								x	8	293	Syphilis 30 years ago.
								x	3 wks.	294	
								x	3 wks.	295	Vellum sewer; mitral stenosis.
								x	years	296	
								x	years	297	School.
								x	years	298	
								x	years	299	Bookbinder.
								x	years	300	Domestic servant; single.
								x	years	301	Emphysema.
								x	6 wks.	302	Printer's labourer.
								x	years	303	
								x	years	304	
								x	years	305	
								x	years	306	
								x	6	307	
								x	3	308	Travelling inspector.
								x	309		
								x	years	310	Ballet dancer.
								x	years	311	
								x	years	312	Married 7 years; barmaid;
								x	mos.	313	secondary syphilis; thyroid enlarged.
								x	years	314	10 years ago enteric; 8 months afterwards aphemia.
								x	years	315	
								x	years	316	Printer's dryer by heat and steam.
								x	years	317	
								x	4	318	Emphysema masking signs.
								x	3	319	General servant.
								x	30	320	Waitress.
								x	years	321	Stringing tags; congenital
								x	years	322	syphilis.
								x	years	323	Upholsterer's trimming.
								x	years	324	Stereo-electrotyping fumes.
								x	years	325	Spinal caries.
								x	2	326	Husband died in consumption.
								x	2	327	
								x	1 $\frac{1}{2}$	328	Married; 5 children.
								x	years	329	Bugler.
								x	2	330	Solicitor's clerk.
								x	331		
								x	332		
								x	3	333	Glove finisher; single.
								x	334	Emphysema.	
								x	335		
								x	336		
								x	years	337	Printer.
								x	2	338	Brass foundry; sulphur fumes.
								x	years	339	Machine minder.
								x	years	339	Married.

No.	Sex.	Age.	M.	F.	Lungs.					Larynx.					
					5	6	7	8	9	10	11	12	13	14	15
					R.	L.	R.	L.	R.	V.	C.	P. or p.	e.	a.	i. a.
340	F.	49								x		R.			
341	F.	21	x				x				x	p.	+		
342	F.	18					x				x	r.			cren.
							x	x				postr.			+
												3rd			
												paresis			
343	F.	52	x				x			x	x	p.			excr. —
344	F.	40	x	x			x				x	r.			+
345	F.	31	x			x					x	r.			+
346	M.	28	x				x	x			x	r.			
347	F.	47					x				x	r.			
348	F.	30	x				x	x			x	p.			
349	F.	45					x	x			x				
350	M.	15	x		x						x			+	
351	F.	52	x			x	x				x	p.	p.	p.	
352	F.	38			x						x		p.		
353	M.	42	x	x	x						x	r.	p.		cren.
354	F.	16	x	x	x						x	x	r.		excr.
355	F.	13				x					x				exc.
						x									typ.
															exc.
356	F.	47	x			x	x								+
357	M.	33				x	x					p.			+
358	F.	20	x			x					x				+
359	F.	22				x					x	r.	p.		±
360	F.	17	x			x						h.	r.		
						x	x					e.	r.		
361	F.	52	x			x						H.	x	p.	
362	F.	19				x								p.	
363	F.	27			x										
364	M.	20			x	x									
365	F.	23			x						x	p.	p.		
366	F.	x	x			x					x	r.	p.		cren.
367	F.	23				x									+

ABSTRACT—FAUCES.

Barnes, H. A.—*Prophylaxis of Post-operative Diphtheria.* “Boston Med. and Surg. Journ.,” May 30, 1907.

This investigation was suggested owing to a fatal case of diphtheria following an operation for tonsils and adenoids in the out-patient department of the Massachusetts General Hospital. The conclusions come to are that the Klebs-Loeffler bacillus may be present in the nose or throat of from 1 per cent. to 3 per cent. of average healthy individuals. They have, however, little or no clinical significance. In direct or indirect contacts, however, they may be found in a much larger percentage of cases, and are likely to prove virulent. Cultures in individual cases only are essential. The author advises examination of every patient when the appointment for an operation is made, a second the day before operation, and, if there are any suspicious signs or any history of sore throats in the family or at the school, cultures should be taken; finally, a third examination should be made before anaesthesia.

Macleod Yearsley.

Larynx.

16 a. e.	17 v. b.	18 v. p.	19 l. e.	20 c. e.	21 A.	22 B.	23 C.	24 D.	25 Duration. Years.	26 No.	Occupation.	Remarks.
R. L. +	R. +	L. R. +	L. R. +	R. +	L. R. +	L. +		x x x x	7 years	340 341 342		
							x x x x		years	343 344	Bookfolder.	
	+	+		+	+		x x x x		14	345 346		
							x x x x		years	347 348	Husband died in consumption.	
	+	+			-		x x x x	x	14	349 350 351	Artificial leaf maker. Spinal caries.	
					-		x x x x		years	352 353	Printer. Bookfolder.	
					-		x x x x	x	years	354 355	31 years ago tracheotomy for removal of growth from larynx.	
							x x x x			356 357 358 359	Office cleaner. Clerk; tuberculosis of bone. Envelope stamper.	
	+						x x x x		2 mos.	360		
	+	+					x x x x		years	361	Bookfolding; emphysema.	
							x x x x		5	362	Book stitcher.	
							x x x x		2 mos.	363 364	Millinery; L. wryneck. Stick mounter.	
							x x x x		years	365 366		
							x			367	Married 1 year!	

ABSTRACT—LARYNX.

Coolidge, A., jun.—*Vocal Nodules in Children.* “Boston Med. and Surg. Journ.,” May 30, 1907.

A case of a girl, aged ten, is reported briefly. She had been hoarse five years, having acquired a habit of speaking loudly on account of a companion's deafness. Adenoids were removed about the same time, but without altering the vocal character. Examination showed two pearly-white nodules, one on the border of each vocal cord, between the anterior and middle thirds. The author briefly reviews the literature of vocal nodules, and points out that they are rarely mentioned as occurring in children. In his own experience they not infrequently appear as early as four or five years of age. He believes they often disappear during adolescence, especially in boys at the time of the change of voice. He has certainly seen them much more frequently in boys than in men. Rest and the proper use of the voice are the essential points in treatment.

Macleod Yearsley.

REVIEW OF THE HISTORY OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

By DUNDAS GRANT, M.A., M.D., F.R.C.S.

THE necessity for such an Association as the British Laryngological was long felt, but it remained for Dr. McNeil Whistler to put it into practical form, when, at the meeting of the Laryngological Section of the British Medical Association in Dublin, in the year 1887, he, as President, advocated its formation, and expressed himself in the following terms :

“ The wisdom that obtains from the multitude of counsels needs not to be insisted upon ; yet, while others engaged in special researches in the great work of medicine and surgery have proven their acceptance of this truth by establishing centres for the advancement of their art, laryngology and its associated specialty, rhinology, have no such representation in England. Contrasted with this seemingly strange defect, the Laryngological Association of America is a bright example of the benefit of collective investigation, which has, even in the few years of its existence, given rich results, until the records of its annual *Transactions* have become an invaluable addition to our literature. The present occasion would then appear to me to be not inopportune to reflect upon the importance of emulating this worthy example ; and I would, gentlemen, express the hope that some proposition for the founding of an association for this object in Great Britain may yet be brought forward, and steps be taken towards its accomplishment.”

Dr. Richard Hayes, of Dublin, took up the question with great spirit, and there devolved upon him the secretarial duties connected with the initiation of the Society. A notice appeared in the *British Medical Journal* of January 21, 1888.

A list of those prepared to join the society was drawn up by him, among other names being those of Sir Morell Mackenzie, Dr. Woakes, Mr. Lennox Browne, Sir Philip Smyly, Mr. Kendall Franks, and others. A preliminary meeting took place on April 27, 1888 (*British Medical Journal*, May 5, 1888), with Dr. McNeil Whistler in the chair, when fifty applications for membership were brought before it. The next step was the first election of officers (*British Medical Journal*, July 14, 1888, vol. ii, p. 89), which resulted as follows : President, Sir Morell Mackenzie ; vice-presidents, Mr. Lennox Browne, Dr. Hunter Mackenzie, Sir Philip Smyly ; council,

Drs. Whipham, Woakes, Baber, Macintyre ; Dr. Richard Hayes and Mr. George Stoker, secretaries.

At the first council meeting, Sir Morell Mackenzie in the chair, sixteen further applications for membership were received (*British Medical Journal*, August 18, 1888, vol. ii, p. 387).

The first regular meeting of the society took place at the Langham Hotel on November 14, 1888, when Sir Morell Mackenzie gave a presidential address, which contained much sound wisdom and which may be re-read to-day with great interest. This meeting was a large and active one, and the programme included such items as "Nervous Affections of the Throat," by Dr. Macintyre; "Anosmia," by Dr. Dundas Grant; "The Influence of Medicinal Agents on Tubercle Bacilli," by Dr. Hunter Mackenzie; "Cancer of the Thyroid Gland," by Dr. Wolfenden; "Nasal Calculus," by Dr. Middlemass Hunt; "Nasal Calculus of Twenty-three Years' Standing," by Dr. Bendelack-Hewetson; and "Physics of Certain Nose and Throat Diseases," by Dr. Greville Macdonald.

At this period several changes took place in the personnel of the society, a certain number of members resigning, while fresh applications were made for election. It is interesting to note that a number of those who, for various reasons, thought fit at that period to withdraw, found it agreeable to return at a later period and to prove themselves valuable and enthusiastic members of the Association.

This is not the time to discuss the reasons, whether personal feeling or policy, which led to these changes ; it suffices to say that when they took place they did not prevent the Association from pursuing an active and pleasant course, with as little disturbance as could be expected in a human institution.

As the history of a nation is often arranged according to the order of its rulers, I shall very shortly refer to the different presidents, and to some of the more notable events which took place during their periods of office.

It is sad to reflect that a number of those have been carried away by death, and their names would form a large section in the necrology of the Association.

The list of presidents is as follows :

Sir Morell Mackenzie	.	.	1888-1889
Sir Philip Smyly	.	.	1889-1890
Dr. Hunter Mackenzie	.	.	1890-1891
Mr. Lennox Browne	.	.	1891-1892
Dr. Sandford	.	.	1892-1893

Dr. Macintyre	1893-1894
Dr. McNeil Whistler	1894-1895
Dr. George Stoker	1895-1896
Dr. Wm. Milligan	1896-1897
Dr. Dundas Grant	1897-1898
Dr. Middlemass Hunt	1898-1899
Dr. Barclay Baron	1899-1900
Mr. Mayo Collier	1900-1901
Dr. Macintyre	1901-1902
Dr. Wyatt Wingrave	1902-1903
Mr. John Bark	1903-1904
Mr. Chichele Nourse	1904-1905
Dr. Woods	1905-1906
" "	1906-1907

No more brilliant representative of laryngology could have been selected than Sir Morell Mackenzie, whose name will be always recognised as that of the greatest British laryngologist, and one who did more than any other to raise the standard of laryngology in this country. His gifts were not purely technical; his social attractions and his literary capacity gave him an outstanding distinction wherever he went. His friends were stanch and devout, and his enemies never withheld their tribute of respect and admiration. All who came in contact with him were influenced by the fascination of his personality, and tolerated from him an amount of imperiousness which in another would have bred resentment. He was a skilled debater, whether by word or pen, but his art was that of the fencer rather than the wielder of the bludgeon. He was placed in trying positions and acquitted himself with a dignity which was recognised even by those who differed in opinion most widely from him. His works are very well known, and among the most important is, of course, his monograph on "Tumours of the Larynx," which will stand alone in the history of British laryngology, as no single man will ever again have such a number of laryngeal neoplasms to deal with as he has had. (The reasons for this I need not stop to enlarge on.) His text-book on "Diseases of the Throat and Nose," in two volumes, is at the present time very difficult to procure, but it is full of exhaustive and accurate information, most pleasantly conveyed. On the serious qualities I will not stop to dilate, but I could easily cite various quotations from this book to show that he had at all events a touch of humour and a playful fancy.

His work on the "Hygiene of the Voice" is certainly full of

humorous and witty remarks, which are generally most pertinent to the subject dealt with. It need hardly be said that with such gifts the meetings held under his auspices were greatly enriched by his presence.

His successor was Sir Philip Smyly, a genial Dublin surgeon, who was beloved, not less than respected, wherever he went, and, great as were his professional accomplishments, his personality was so singularly pleasant that he would have been acceptable on their account alone. The tone imparted to the meetings by his presence was a valuable asset to the Association. His inaugural address contained a *résumé* of the work of the Association during the previous session, and showed that he had not been less active himself than the other members.

Dr. Hunter Mackenzie occupied the presidential chair during the Session 1890-91. He was a highly original contributor to the proceedings of the Association, and his remarks were always accentuated by clear and decided utterance. Like all his predecessors in the chair, he too, has his place in our necrology, as he died a few years after, a victim of cirrhotic Bright's disease. His physical courage was stronger than his judgment in regard to his own case, as no doubt his end was hastened by his determination to fight against his disease rather than to take the rest and comfort which he would have advised for any of his patients.

During his year a very important case was brought forward by Mr. (now Sir) Kendall Franks—namely, one of lymphadenoma affecting the tonsils, a rare condition which is apt to be overlooked.

The next president was Mr. Lennox Browne, whose loss to us is so comparatively recent that very little reference to him is required. His magnificent energy kept the Association going: many felt that without him it would be apt to languish; subsequent events, however, proved the contrary and illustrated again what had been so often seen, that as long as the masterful and energetic man is present others are prepared to leave the monopoly of these qualities to him, but when they are on their own resources without him the stores of such qualities in reserve, even if in smaller amount, are readily forthcoming, and so it has been with this society, though many of us must envy our departed ex-president his power of decision and control. His inaugural address was founded on a quarter of a century of practice as a laryngologist. His great work was his handbook on "The Throat and Nose and their Diseases," which became larger with each edition, as was inevitable with the progress of our science, but those who can look back to

the time when his first edition was brought out will recognise that it had qualities which are diluted in the expansion. The beautiful collection of chromo-lithographic pictures of the diseased conditions of the throat, which form such an important part of this work, will stand as a monument to his technical and artistic genius, however many atlases and treatises may issue from later writers.

In 1892 to 1893 the Association was graced by the sunny presence of Dr. Arthur Sandford, of Cork, as its president, and among other contributions to the work of the Association Dr. Sandford opened the special discussion on the necessity for systematic voice-training in public speakers, and moved the important resolution that—"It is the opinion of this Association that insufficient attention has hitherto been paid to the subject of voice-training as a branch of education, especially as regards preparation for public speaking. Also that, in addition to increased personal comfort and public advantage to be obtained from proper voice cultivation, many serious diseases of the vocal cords would be prevented by methodical training in their use." An action founded upon this has been to a certain extent taken up, and public benefit has resulted therefrom. In his inaugural address he discussed the question of the antagonism to what was designated as "over-specialism," and indicated that the objection was not to this but to the abuse of specialism. We are indebted to him for the proposal that a cordial invitation to rejoin this Association should be offered to those former members who for a variety of reasons had detached themselves from it some years previously. The response to this showed the acuteness of his insight as well as the largeness of his heart, and the Association, as well as those invited, have both profited by it.

Dr. MacIntyre's first presidency occupied the session of 1893-1894, and it need hardly be said how universal was the feeling that he had more than deserved the honour which was thus conferred upon him, by his valuable contributions to the work of the Association from the very beginning, more especially in the direction of investigating and developing the use of physical agencies, such as electricity and X rays, in the service of laryngology.

The most memorable session in the annals of the Association was the one of 1894 to 1895, when Dr. W. McNeil Whistler occupied the presidential chair. Apart from the ordinary work of the Association, the opportunity was afforded its members, by the meetings of the British Medical Association in London in the summer of that year, of inviting their brother specialists from all parts of the

world to unite with them for several days' conference and appropriate conviviality. The *Proceedings* of this summer meeting form a special volume, a copy of which was received by each Fellow and by each of their guests, and which forms a most interesting and becoming memento of this important occasion. Dr. McNeil Whistler presided over the first part of the festival, and, in his unavoidable absence owing to illness, the chair was occupied with dignity and success by the senior vice-president, Mr. Mayo Collier. Dr. McNeil Whistler has since then, unfortunately, been the subject of an obituary notice; he is the last of the presidents who is not still alive. The respect in which he was previously held by the Fellows of the Association ripened and became tinged with affection as they got to know him better, and under his presidency a very interesting and successful year was spent. A striking black and white portrait of him by his illustrious artistic brother was reproduced in the *Journ. of Laryngol., Rhinol., and Otol.*, along with his obituary notice, at the time of his death.

It was during the period of his presidency that the important change was made in the constitution of the Society by which otology was included in its scope and its title was altered to that of "The British Laryngological, Rhinological, and Otological Association."

His successor was Dr. George Stoker, who had devoted for many years his valuable services to the Association in the capacity of secretary. His characteristic vivacity and optimism were well in evidence during his year of office, and his presidential address included some quaint and original remarks on presidential addresses in general.

He was succeeded by Dr. William Milligan, whose contributions to our specialty have made him well known far beyond the area of his active work. In an elegant and suggestive presidential address he dwelt upon the important practical point of the necessity for a knowledge of otology on the part of medical officers of fever hospitals, in which all will agree with him, and which we can only hope that his able advocacy will be successful in bringing about.

The writer of this review had the honour of occupying the chair during the year 1897-1898, and permitted himself, under the heading of "Lines of Progress in Laryngology, Rhinology and Otology," to review some of the more recent solutions, and attempts at solutions, of various problems connected with the specialty. The most interesting event of the year was one in which he was prevented by illness from taking a share in, namely

the reading of a paper by Mr. Charles A. Ballance on "Twelve Fatal Cases of Intra-cranial Otitic Lesions." This took the shape of a somewhat informal description of cases, and particularly such as had been verified by *post-mortem* examinations, and it was, therefore, of priceless value to those desiring accurate and reliable grounds for diagnosis, prognosis and treatment; it was, unfortunately, not available for publication in the *Transactions*, but it formed the basis of Mr. Ballance's splendid chapter in Clifford Allbutt's "System of Medicine" in the volume devoted to diseases of the nervous system. No aural surgeon can afford to dispense with the study of this monograph. At the same meeting Mr. Frank Marsh described five cases of cerebral abscess in connection with chronic suppuration of the middle ear.

During Dr. Middlemass Hunt's year one of the most interesting events was a discussion on the value of general treatment in diseases of the throat, nose, and ear, opened by Dr. Barclay Baron, Mr. Wyatt Wingrave, and Dr. R. H. Woods, a subject the mere title of which indicates its interest and importance. The president's communications and contributions to the discussion were redolent of his characteristic acumen. His presidential address on three British otologists, Wilde, Toynbee, and Hinton, interested the meeting very greatly, though it surprised them that he had not selected a subject in connection with the study of the throat and voice, with which they had so long identified him.

Dr. Barclay Baron, in his presidential address, while congratulating himself on the experience acquired as physician to a general hospital in his early days, expressed the deep debt of gratitude that specialists owe to their medical brethren, who practise general medicine and surgery, but he very smartly indicated that there was a certain amount of debt on the other side. In answer to a surgeon of some eminence, who ventured to suggest that the operative removal of adenoids could frequently be dispensed with if we taught our patients, who have those growths, to breathe through the nose, he aptly compared this to a suggestion that we should attempt to draw fluid from a corked bottle without removing the cork. Among other interesting communications brought before the Society during his year of office was the very scientific and practical paper by Dr. Brown Kelly on "Epistaxis from the Ethmoidal Veins." The year was saddened, however, by the death of Dr. McNeil Whistler to whom I have already made reference.

Mr. Mayo Collier was inducted to the presidential chair for the year 1900-1901, and launched himself into power by delivering a

lecture on mouth-breathing and its relations to the throat, ear, nose, and accessory cavities, advancing his arguments in his characteristically trenchant style, and driving them home by clever applications of his skill in the manipulation of apt analogies.

Dr. Macintyre was invited to re-occupy the chair during the session 1901-1902, and in his address pointed out some of the advances in the physical treatment of various diseases affecting the throat and nose, such as lupus, tubercle, epithelioma, and rodent ulcer, one of the greatest novelties being the therapeutic effect of such sparks as were emitted between the terminals of the Wimshurst machine as distinguished from the X rays; to such rays he attributed some effect in stimulating the normal healing forces, though whether that action was germicidal or not he did not consider as yet proved.

Dr. Wyatt Wingrave was president during the session 1902-1903, his valuable contributions and his ceaseless help to the Association having rendered him well deserving of the honour conferred on him. Among the most interesting contributions of the session was his own address on "Tobacco Deafness." He proved the condition to be a nerve deafness, and found that in 50 per cent. there was loss of hearing for low tones; the results of 80 per cent. showed marked improvement on abstinence from tobacco, rendering the diagnosis of such a condition very important.

It will be with great regret that the Fellows of the Association have observed the increasing defect of hearing on the part of their respected *confrère*, which has necessarily interfered most seriously with his work as a practitioner; they will realise, however, with gratification, that this does not prevent him from carrying on those pathological pursuits with which he has been so honourably identified during the whole of his working life. His skill as a microscopist is well known, not only at home, but abroad, and his opinion as a pathologist is much sought after, and will no doubt become more so with the advance of time.

Among other interesting events of the session was an exhibition of probes and cannulae for the frontal and ethmoidal sinuses, devised by Mr. Chichele Nourse. Another was an important case of thrombosis of the cavernous sinus, in the practice of Dr. Samuel Lodge, the disease apparently originating in the sphenoidal sinns.

Mr. John Bark, of Liverpool, succeeded Dr. Wingrave, and in his inaugural address stated how refreshing it was for the provincial laryngologist to come to the metropolis; he reviewed our operative technique, especially in regard to the nose, and expressed his

indebtedness to Mr. Mayo Collier, from whose work on the surgery of the frontal sinus so much had been learned. He expressed eclectic views with regard to the choice of instruments in various operations, and his review of the subject is replete with suggestiveness. During his year the Association had to deplore the death of Sir Philip Smyly. Many further accessions to the Association took place. A discussion on "Latent or Intermittent Nasal Obstruction" was opened by Mr. Mayo Collier in his usual active and interesting style.

Mr. Chichele Nourse was elected president for 1904-1905, and in an eloquent address referred, among other events, to the forthcoming hundredth birthday of Senor Manuel Garcia, an event in which the Association was very properly interested; he made some very valuable remarks with regard to the logical methods which should be employed in our reasonings, and stated, in reference to reasoning by analogy, that it was hardly ever safe although so commonly employed. An interesting feature of the year was a discussion opened by Dr. J. Sim Wallace on nasal obstruction and mouth breathing, in which strong insistence was made on the necessity of foods which involved thorough and active chewing. Dr. Harry Campbell added considerably to the interest of this discussion. Among other events was the reading of a paper by Mr. Griffith Wilkin, who had come from his home in Dorset to express his views with regard to the prevalence of adenoids, urging that it was desirable to appoint a committee to investigate thoroughly the question of the prevalence of adenoids in the child life of the country as of importance to the national stamina.

Dr. R. H. Woods, of Dublin, is in the chair to-day, having been invited to continue in its occupation for a second year. His presidential address awoke a great deal of thought, especially with regard to the prevention and treatment of acute suppuration of the middle ear in infectious fevers, with regard to which he had made some laborious bacteriological investigations.

The annals of this Association would be very incomplete if all reference were omitted to certain important members who neither occupied the presidential chair nor earned a place in our necrology.

Among the most active in his time was Dr. Norris Wolfenden; his contributions to the study of the bacteriology of the throat and of the action of Koch's tuberculin were highly appreciated by the Association.

Dr. Edward Woakes, whose views have given rise to more controversy than any other British rhinologist, was for many

years an active participant in the work, and I am sure that it will be admitted, even by those who differ from him in the interpretation he placed upon his investigations, that no one has directed our attention to the minute examination of the nose more thoroughly than he has done. He is now enjoying well-earned repose in the south of England, where the good wishes of all the fellows of this Association will follow him.

Another veteran who has retired from active work is Dr. Charles Warden, who frequently came from Birmingham to take part in our meetings. He had some exceptional opportunities of observing cases of functional disturbances of taste and smell, which will be found in the *Transactions* of the Association. He is still in the enjoyment of ease and dignity.

The pathological side of our specialty has not been neglected, as many valuable contributions from Dr. Wingrave, Dr. Pegler, Mr. Lake, and others have testified.

Much of the success of the Association is attributable to the energy of the secretaries, Dr. George Stoker, Dr. Wyatt Wingrave, Dr. Hemington Pegler, Mr. Richard Lake, Mr. StGeorge Reid, Dr. Furniss Potter, Mr. Chichele Nourse, Mr. Atwood Thorne, Dr. P. H. Abercrombie, Dr. Andrew Wyllie, Mr. W. Stnart-Low, Mr. Harold Barwell, Mr. Carvell, and Dr. Dan McKenzie. The Association is also much indebted to its treasurers, Mr. Lennox Browne, Dr. Norris Wolfenden, Dr. McNeil Whistler, and Dr. Percy Jakins.

I must refer to a few of our fellows who have been called away without having filled the office of president.

One name, that of Dr. Bendelack-Hewetson, is perhaps better known abroad than it is at home; he was the first to advocate the carbolised glycerine treatment of acute inflammation of the middle ear, and is quoted as such in most of the foreign text-books on otology. He was a man of considerable force of character, and had the courage of his opinions. He devised the "glove-stretcher" dilator for nasal obstruction, which, in spite of its somewhat barbarous appearance, has been found to be of considerable practical efficacy, though it has made way for more delicate operative procedures.

Dr. Farquhar Matheson, for many years senior surgeon to the Royal Ear Hospital, and aural surgeon to the various Scottish charities, was a highly respected and appreciated member of the more typical Scottish population in London. He was somewhat conservative in his views on treatment, and was rather impatient

of new things. His views on the relation between stammering and adenoids have received considerable confirmation.

Mr. Thomas Carmalt Jones was an unobtrusive, but popular and valued member of the association. His name is, perhaps, best known in connection with his invention of the "spoke-shave," or turbino-tome, which has removed nasal obstructions from many who suffered from this condition, and although it was used by the inventor and his followers more frequently than some thought advisable, it still has its place in selected cases, and when used with judgment is a valuable instrument. A less well-known contribution was one upon the functions of the epiglottis, in which, as the result of careful observation, he completely rejected the "box-lid" idea, which at the time was held by many observers. He had a dry and pleasant wit, and possessed a calm and dignified personality.

The perusal of the proceedings of this Association would show that they contain many observations of interest and practical value, and it is only to be regretted that so many of the volumes are destitute of indexes. If the Association saw its way to have an index prepared it would be an acquisition of considerable value.

Taking it altogether the career of the Association has not been a very sensational one; it has, however, been a creditable and useful one, and whoever has had the advantage of being present at the recent meetings will agree that it would be difficult to match its programmes anywhere.

It has now completed its nineteenth year, and, in spite of fluctuations in the way of health, is still an extremely vigorous institution, having within itself such factors as would have guaranteed it a highly prosperous career under its own name and in its existing character. Circumstances have, however, arisen which are well known to all the fellows, and which have led them to the wise determination that the interests of the branches of the medical science with which they concern themselves will be better served by their merging their Association in the newly-founded Royal Society of Medicine, to take its place with numerous other societies whose distinction and usefulness, like its own, have been well tried and proved in the past.

The co-operation of the various societies puts before us potentialities for progress such as have not been presented before, and I cannot help thinking that, by the reference of obscure cases from one society to another, a large amount of mutual instruction will be obtained, and that the progress of the healing art in all its branches will be fostered in the highest degree. We have fre-

quently had before us cases in which reference to a body of neurologists, ophthalmologists, gynaecologists, or other specialists would have thrown much light, and I have no doubt that in the other societies many cases have been brought forward which a reference to our own would have cleared up. In the future such interchanges of help are likely to receive every encouragement, and the result, in my opinion, can only be of the very best.

It is to be hoped that the new section will receive new and valuable adherents, and it is our duty to see that at the outset the work and the conduct of its meetings are of such a character as to make the most favourable impression upon those members of the general society who may avail themselves of their privilege of attending the meetings, and who may thereby be induced to offer themselves for election to its membership for the benefit of everybody concerned.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE PARISIAN SOCIETY OF LARYNGOLOGY, OTOLOGY, AND RHINOLOGY.

Meeting held on June 7, 1907.

The President, M. WEISSMANN, in the Chair.

EXTREME HYPERSTROPHY OF THE FAUCIAL AND PHARYNGEAL TONSILS IN AN ADULT.

M. LE MARC'HADOUR showed a working baker, aged thirty-five, who had enormous tonsils and post-nasal adenoids. There was nothing beyond simple hypertrophy, as examination of the blood was normal; there were no enlarged glands and no evidences of secondary syphilis.

As a contrast to what we see habitually, namely, that the lymphoid tissue of the pharynx shrivels with advancing age, in the patient under consideration increase had taken place.

LARYNGEAL PAPILLOMATA IN A CHILD.

M. LE MARC'HADOUR showed a girl, aged eleven, who had been operated on when three years old for papilloma in the larynx. The

operation practised was thyrotomy, but this only gave a temporary result. Ten months later there was complete recurrence and it was necessary to do tracheotomy in a hurry. Protected by the cannula the larynx was put at rest and recovery ensued. The tube was found necessary for five and a half years.

M. BOULAY asked his colleagues whether they were of his opinion as follows: *In cases of papillomata interfering with respiration thyrotomy gave merely transitory results, and tracheotomy is much to be preferred as it is often followed by cure.*

M. MAHU quoted cases in which, in children of less than ten years of age, the subjects of papillomata of the larynx, there were no other subjective symptoms except cough and hoarseness. He considered it was inconvenient in such cases to recommend to parents even a simple tracheotomy.

M. WEISSMANN remarked that the diagnosis was often difficult on account of the indocility of the children and the ineffectiveness of anaesthetics in them.

M. KÖNIG remembered having seen at Fraenkel's clinic a little boy who had a large mass of papillomata for which an endeavour had been made to operate by the endo-laryngeal method, and in which it was impossible to bring about local anaesthesia either with cocaine or antipyrin.

M. LE MARC'HADOUR reminded the Society of a case reported by Dr. Rolland in Dr. Broca's wards. It was that of a child who came to the hospital with such a degree of stridor that immediate operation was required. In the first instance thyrotomy and tracheotomy were performed, and the papillomata were removed; at the end of twenty-four hours the cannula was extracted, but in less than three months there was complete recurrence, and the child returned once more to the hospital on account of stridor; on this occasion only tracheotomy was performed. This happened two years ago, and the little patient, from whom papillomata were removed from time to time through the natural passages, still retained the cannula, but is approaching cure.

M. Luc came to the conclusion that the cases which had been cited were of such a nature as to enable us to formulate principles of action in cases of children affected with laryngeal papillomata. There were two classes of cases: (1) those in which *the neoplasms caused at the same time hoarseness and dyspnoea*, in which tracheotomy should be performed, and we should expect from the enforced repose of the organ spontaneous retrogression of the neoplasms; (2) those in which there is *simple hoarseness*, in which

we should prescribe simply the most complete possible rest for the larynx. In cases in which adult age has been arrived at without the treatment in question having produced the desired result, we should then attempt the extraction of the papillomata by the natural passages.

AN UNDESIRABLE RESULT IN PARAFFIN PROTHESIS.

M. KÖNIG showed a case of a young girl, aged nineteen, on whom injection of hot paraffin had been carried out, to remove a nasal deformity of the *axe-cut* type. The immediate result was perfect, and lasted for several weeks, but at the end of that time there appeared a hard knob of the size of a cherry, a little higher than the seat of injection. It is, therefore, necessary to exercise reserve in regard to prognosis as to the ultimate result of paraffin injections.

M. MAHU said that these accidents were rare, but already several cases had been published, in particular by Broeckaert, who called these benign tumours *paraffinomata*. The misfortune is, however, reparable. In cases of this kind in which paraffin ought to be injected into a soft tissue, and ought not to be submitted afterwards to too great muscular traction, he preferred *injections of cold paraffin*.

PROCEEDINGS OF THE AMERICAN LARYNGO-LOGICAL ASSOCIATION.

Twenty-ninth Annual Congress, held at Washington, D.C., May 7, 8, and 9, 1907, in connection with the Seventh Triennial Congress of American Physicians and Surgeons.

President's Address, by Dr. A. W. DE ROALDES, New Orleans, La.

THE PRESIDENT thanked the Association for the honour it had conferred upon him, and alluded to his own work in the establishment of the Hospital for Eye, Ear, Nose, and Throat Diseases in his own city. He felt that it was the Association's duty to push the work of securing for the specialty a greater recognition than it has yet enjoyed in the medical schools, and that a further need of the times was the establishment of more special hospitals for this class of diseases. This would not at all interfere with special departments in general institutions. He also announced his intention to establish a prize fund for the Association. This suggestion had

been made many years ago by the Association's first President (the late Dr. Louis Elsberg). He referred to the deaths of Senor Manuel Garcia, Honorary Fellow, and of Dr. William Carr, Glasgow, Active Fellow, both of whom had died since the last meeting. He also referred to the celebration of Professor von Schroetter's seventieth birthday in Vienna, to the similar celebration in honour of Professor Bernhard Fraenkel in Berlin, the pleasure felt in welcoming Professor Gustav Killian, of Freiburg, to the present Congress, and the proposed Tuerck-Czermak Congress, to be held next spring in Vienna, to celebrate the semi-centennial of the establishment of systematic teaching in laryngology.

A Problem in Asepsis in the Routine Office Work of the Laryngologist.

A paper on the subject was read by Dr. THOMAS HUBBARD, of Toledo, O. He made a plea for the same aseptic precautions in office work as in major surgery, and believed that in future more of the minor work now done in the office would be transferred to special hospitals. Most of our office work is now done under conditions which do not measure up to the requirements of modern aseptic surgery. All operators have experienced anxiety over cases having symptoms of sepsis, and cases of delayed healing arise which cannot be accounted for by defective operation. He then presented detailed features of office routine which he considered essential. Dwelling on disinfection of instruments, sterile solutions, napkins, care of instruments to prevent rusting, etc., sterilisation of the area to be operated on, avoidance of too firm packing, quality of air used in atomisers and air tanks, etc., a little trouble taken in all these respects would remove practically all the possibly injurious factors which exist in the routine work of the office as ordinarily carried on. The surgeon, in whatever special field or working environment, must bear in mind that only by high ideals in the refinement of cleanliness, in both theory and practice, can he expect to stimulate his assistants and associates as to the proper discharge of their part of the work. The aim of every operator should be to develop a thoroughly consistent system of approximate surgical cleanliness.

Dr. GORDON KING presented a device for sterilising sprays in office practice. He had been very much interested in Dr. Hubbard's statements in regard to the sterilisation of instruments and of the air. Filters placed over the ends of sprays showed conclusively that, as ordinarily used, the spray must project many micro-organisms over the operative field. Dental napkins were of much service

in office work, but paper napkins could be used instead, and they were practically sterile.

Dr. W. F. CHAPPELL, New York, spoke of the danger of infecting the doctor from the sputa of patients. He himself had had a septic dermatitis of the face, eyes, and neck during the past winter from the expectoration into his face, by a patient, of pus from an old pharyngeal abscess.

Dr. GEORGE L. RICHARDS suggested the use, in such cases, of ordinary automobile goggles, which he made to hold a gauze mask.

Dr. R. C. MYLES was accustomed to cover his patient and himself with a special kind of oiled silk. He frequently had a nurse hold a pane of glass before his face during operations. Such a device was more convenient than a glass shield suspended from the ceiling. Instruments must be boiled frequently. Asbestos-packed syringes were the only ones meeting all requirements. It was true that they had no definite knowledge of the occurrence of much sepsis occurring in office practice, but it was possible that there were some forms of septic conditions not localised in their manifestations.

Dr. HUBBARD closed the discussion, stating that where there was a chance of doing an aseptic operation we should sterilise our hands and wear rubber gloves.

A Review of the Methods in use for the Removal of Adenoids, with a Description of a Method which is Thorough, Rapid, and Safe.

This review was presented by Dr. GEORGE L. RICHARDS, Fall River, Mass., who exhibited a large collection of the various instruments for the purpose. He thought that undue stress had been laid on the necessity of cleaning out the fossa of Rosenmueller on account of its effect on the ear. His own preference was for the adenotome of Schuetz, which had been presented to the Association some years ago by Dr. Farlow. It finds its best employment in young adults without anaesthesia. The operator should have three sizes, as there were but few pharynges in which one size or the other would not answer every requirement. In case of young children under anaesthesia, and held in the arms of the nurse, a palate hook should be used so as to gain a good idea of the size and exact location of the mass to be removed. A little side dissection of the growth with the finger toward the centre aids in getting it within the fenestrum. The instrument is then

pushed firmly back against the naso-pharynx as the knife cuts through and the growth comes out in one piece. Instruments of different sizes may be used in the same case if necessary to remove small fragments left after the main cut. The adenotome is a slender instrument, and the knife may occasionally break. The instrument should be carefully examined before each use, and care also is required in taking it apart and putting it together again.

Dr. JOHN W. FARLOW recalled a previous meeting of the Association at which he had presented the adenotome advocated by Dr. Richards. The disadvantage of the instrument was that they could not well see into the naso-pharynx and determine just how large an instrument should be used. Hence he did not prefer the adenotome for very young children. In proper cases, however, the guillotine seemed to him to be the ideal instrument.

Dr. D. BRYSON DELAVAN said that his experience with this particular instrument had not been fortunate, as he had had one break, leaving a portion of the metal in an adenoid mass. Fortunately it was removed without untoward incident. One objection was that the pharynx had to fit the instrument, whereas the latter should fit the pharynx. His own preference was for the Frothingham modification of the Gottstein knife. Hard rubber palate retractors were preferable to those of metal. He believed that it was absolutely necessary to thoroughly clear out the fossa of Rosenmueller in order to obtain relief from ear symptoms.

Dr. W. K. SIMPSON, New York, was also an advocate of the Frothingham curette. The Concannon forceps he thought to be the best model of this class of instrument. It had a guard which enabled the adenoid to be removed in one mass.

Dr. L. A. COFFIN believed that the success of any instrument depended largely on the "man behind the gun" and his experience. There were very many poor models on the market of good instruments which had been changed by the makers from the original models.

Dr. HENRY L. SWAIN was also a partisan of the adenotome. If, however, we had in the naso-pharynx a central mass on two sides, we were liable to miss with this instrument the side-strings from the main masses. The adenotome ought to be followed up with a blade-curette.

Dr. W. E. CASSELBERRY had used the adenotome for a long time, but was not satisfied with it. There was a liability to leave behind small pieces of tissue behind the posterior nasal openings. Some sort of supplemental operation was therefore necessary. This

was a limitation of the efficacy of every adenotome he had ever seen. The adenotome would answer if used with the curette.

Dr. G. A. LELAND said that unless the fossa of Rosenmueller was cleared out there would be recurrent ear-ache. Smaller instruments than were generally used would suffice for the purpose of cleaning out the fossa.

Dr. R. C. MYLES said the finger ought always to be introduced into the naso-pharynx in order to guide the intelligent application of any cutting instrument. The axis of the instrument should be kept in line with the axis of the head. Unless this was done, parts would be damaged. The fossa of Rosenmueller ought always to be cleaned out.

Dr. G. HUDSON MAKUEN exhibited a modified Gottstein instrument, which he had found of great service. Dr. RICHARDS closed the discussion.

Straightening the Nasal Septum.

Dr. A. W. WATSON, of Philadelphia, Pa., discussed this question with special preference to the operation devised by him several years ago. It was his view that when a septum could be put in proper place without resection the patient was better off than if the septal framework had been removed. The methods of his operation, for which he claimed originality, were the overlap and the bevelled incision. This procedure was applicable to the vast majority of cases. In every case the two conditions to be met and overcome are resiliency and redundancy of tissue. The author thus described his operation: incision on convex side of septum from behind forward, just beneath the angle of deflection, following the angle to its anterior extremity, and then curving upward for a short distance. This cut should be bevelled, and by preference is *not* carried through the mucosa of the concave side. The upper part of the septum is then pushed over the lower portion into the opposite side, thus overlapping the lower portion. If the angle is perpendicular the incision is then made behind the angle, the bevel being from behind forward. An incision is also made at the base forward from the first incision, forming a triangular flap. The posterior edge of the anterior portion is then pushed over the posterior portion. If, as is frequent, both horizontal and perpendicular angles exist, both incisions are made meeting at the base. The anterior fragment is first made to overlap the posterior, and then the upper portion, including the anterior portion, made to overlap the basal portion. This forms a double locking. If the

deflection extends into the bony septum the bony deflection is easily broken and replaced with forceps. If the septum is thickened below the horizontal angle the thickened base which protrudes into the formerly obstructed naris should be dealt with as are spurs, etc. If the septum is thin in the lower part and projects unduly into the naris, it may be broken into a perpendicular position in line with the upper portion, thus increasing the overlap and making the septum more firm, the bony base soon uniting by bony union. The author passes into the formerly obstructed side a folded piece of antiseptic gauze long enough to extend the length of the former deflection and about one third to half an inch wide, thick enough to pass easily. This should be changed every three or four days until healing is complete—about four weeks. The instruments used are a straight knife like a tenotome, and the same with a blade at an obtuse angle. These suffice for the horizontal incision. For the perpendicular incision a knife with a small blade bent on the flat almost to a right angle and sharp on both edges should be used. The forceps are a modified Adams', the fenestrum being lengthened to an inch and a quarter so as to reach any part of the bony septum.

Dr. A. A. BLISS, Philadelphia, had had much satisfaction with the Watson operation. Sub-mucous resection was being overdone. For the angular deflections the Watson operation was preferable.

Dr. EMIL MAYER could also commend the Watson operation for angular deflections. He would like to lay stress on the matter of freshening the edges of the floor on the concave side after having performed the operation on the convex side. This gives a double opportunity for holding the part pushed over into the concavity. He preferred rubber tubing to gauze for packing. No one operation sufficed for every case.

Dr. W. E. CASSELBERRY asked if it were not possible to obviate the second operation sometimes called for, namely, the removal, as one would take off a spur, of the thickening along the long part of the horizontal cut protruding into naris of the convex side after healing. The Watson operation could be done quickly, efficiently, and without difficulty. He preferred to operate under general anaesthesia.

Dr. WATSON stated that by preference he went through the mucosa of one side only, but this restriction was not always possible.

Dr. W. L. BALLINGER, Chicago, thought that if we could save the framework of the septum it was most advisable so to do. He

had had one sinking-in of the nose after a sub-mucous operation, not having made due allowance for the chondritis undoubtedly following the injury.

Dr. R. C. MYLES referred to the various operations devised during the last few years. Sub-mucous operations were not free from danger, as he knew of two cases resulting fatally. The deeper the operation on the bony septum, the greater the element of danger. He thought the perpendicular plate of the ethmoid a very difficult thing to handle.

Dr. J. SOLIS-COHEN made comparisons between the mechanical principles involved in the Watson and in the Gleason operations. He had seen serious cerebral effects follow the latter. The discussion was closed by Dr. WATSON.

Large Tumour of the Laryngo-pharynx removed by Sub-hyoid Pharyngotomy.

Dr. W. F. CHAPPELL, New York City, reported the case of a large tumour of the pharynx, occurring in a woman, aged fifty-one, who, at her thirty-sixth year, had had a grippé attack, leaving her hoarse. At the forty-fifth year the breathing became laboured, being much worse at night. Two years later she began to choke on particles of food, to have increased dyspnœa, difficulty in sleeping, severe headache, and vertigo. In her sixty-first year she came under the reporter's observation. A large mass was found to completely fill the laryngo-pharynx, pressing the epiglottis forward against the root of the tongue, and latterly touching the pharyngeal wall. Posteriorly it extended downwards some distance, and it was difficult to see how the patient could breathe or nourish herself. The laryngeal interior could not be seen. The surface of the mass was covered with large, tortuous vessels. A low tracheotomy was done under cocaine. Later an effort was made to remove the growth with a cold wire snare, but adhesions prevented. The solid nature of the tumour was determined by the introduction of a curved scalpel. A sub-hyoid pharyngotomy was then done. The pedicle was found close to the left ary-epiglottic fold, and was tied off with a silk ligature. The circumference of the mass was four and a half inches, and it was found to consist of fibrous tissue very moderately supplied with nuclei and round cells. The patient made a good recovery. Difficulty in nutrition after the operation caused some scorbutic symptoms, but these were promptly relieved by fruit acids. The reporter had found records of eleven similar growths.

A Plea for Local Anæsthesia in Operations on the Maxillary Sinus.

A paper with this title was read by Dr. GORDON KING, of New Orleans. He took the position that we ought to minimise the dangers of anaesthetics as much as possible, and that we ought, consequently, to employ local instead of general anaesthesia whenever and wherever possible. In operations around the mouth and pharynx general anaesthesia caused annoyance and delay from nausea and vomiting, inhalation of blood and secretions into the larynx and frequent interference with the administration of the anaesthetic. The author was led to employ local anaesthesia in antrum operations two years ago and had used them only since that time. He is a loyal adherent of the Caldwell-Luc operation and has been able to finish it in less than twenty minutes. He swabs the mucosa briskly with a 10 per cent. cocaine solution, and when the area has become insensible to the needle-point he injects a solution of 2 per cent. strength, with 1-2000 adrenalin, along the line of incision, at first superficially into the submucous tissue, and later into or under the periosteum. This done, incision is made down to the bone and the periosteum elevated until the exact position of the infra-orbital foramen can be made out, when, to insure perfect and widespread anaesthesia, a few drops of the solution are injected into or around the trunk of the infra-orbital, next at its point of exit. He finds it prudent not to lay bare the nerve itself as this may lead to post-operative neuralgia or neuritis. The bone being sufficiently exposed to allow of easy access to the antral cavity, the latter is opened with a chisel or electric burr, when several drops of 10 per cent. cocaine and some adrenalin are introduced into the cavity, which is then swabbed by means of a cotton-wool carrier. A few minutes must be allowed at this point for absorption of the solution and the time may be utilised by applying a pledge of cotton saturated with the solution under the inferior turbinate, where the counter-opening is to be made into the nose. The antrum is then curetted, the counter-opening made, and the buccal wound sutured. Adrenalin lessens the blood-flow and prolongs the effect of the cocaine while off-setting the toxic tendency of the latter. The author has followed the foregoing plan in some fifteen cases and with most satisfactory results. In two instances he has performed the radical operation on the frontal sinns under local anaesthesia, but the results have not been so satisfactory, as this region is more sensitive and less susceptible to thorough cocainisation.

Dr. R. C. MYLES stated that he had operated on 200 antral cases during the last fifteen or twenty years, but that during the last eight or ten years not more than 2 per cent. of the operations were done under anaesthesia. He had gradually diminished the strength of the cocaine solution until now he rarely used more than $\frac{1}{8}$ per cent. The operation was practically painless unless we got near some dental nerve. Water, by its pressure on the nerves, sometimes gave as good anaesthesia as did cocaine. Of late years he had preferred the nasal route, introducing a light platinum needle under the inferior turbinate and then introducing the cocaine and adrenalin through the opening thus made, for the most of the pain was in the antral mucosa. He did not believe in putting the cocaine on a region on which he did not intend to operate, and therefore considered it unwise to spray it indefinitely into the nose. He knew of several deaths from general anaesthesia. They were more common than published reports would lead us to believe.

Dr. E. W. CASSELBERRY could also commend the use of local anaesthesia for these operations. He had not been able, however, to operate as quickly as had Dr. King. The injection of some of the solution into the region of the infra-orbital nerve, as had been suggested by Dr. King, would doubtless be a very useful addition to the procedure.

In closing the discussion, Dr. KING said that local anaesthesia facilitated the operation. It avoided all the objections which arise from the use of a general anaesthetic in operations about the mouth. After an opening was made into the antrum a 10 per cent. solution could be injected, and by the time the antrum was thoroughly opened it was pretty insensitive to pain. A still stronger solution could be swabbed on the interior surface of the cavity.

Myxo-fibroma of the Naso-pharynx.

After some general observations on tumours of this nature occurring in the naso-pharynx, Dr. D. BRADEN KYLE presented a specimen removed from a man, aged twenty-four, who complained of inability to breathe and of almost continuous pain or aching in the region of the frontal sinus or over the bridge of the nose. On the right side a mass almost protruded from the nostril. The mirror outlined a mass in the naso-pharynx, but it did not extend below the margin of the soft palate. There was considerable catarrhal discharge, but no evidence of sinus or ear trouble.

A distinct swelling was evident at the inner corner of the right eye. The left naris was occluded owing to pressure of the tumour on the septum. The mass was removed without difficulty, and six years later the patient was in good condition, with both nares of practically the same size. The interesting points in the case were the site of origin—at the posterior end of and under the superior turbinate, the symptoms of nasal occlusion by septal pressure, the fact that the growth did not follow the path of least resistance, the practical absence of haemorrhage, the pedunculated nature of the mass removed, the absence of ear and sinus involvement. The bony septum seemed to have been softened by the pressure and inflammatory process. It was easily forced back into the median line by the nasal dilator and remained in position without the aid of splints.

Dr. JOHN W. FARLOW stated that one symptom in a patient of his, and not present in that of Dr. Kyle, was a change in the voice. The growth was larger, even, than in Dr. Kyle's case. The character of voice changed immediately after the tumour was removed. His patient had formerly pronounced the letter "M" as "P," but as soon as the growth was removed the "M" came out very clearly.

Dr. A. W. WATSON had had a similar case, in which the circumference of the growth was about six inches. It had involved both sides of the septum and extended into one antrum, producing some facial protrusion on that side. The large mass filling the naso-pharynx was removed with the snare. The entire vault of the pharynx was covered, however, with similar material, and was reproduced as fast as it was cleared away, but under the influence of electric needles it began to diminish, and finally ceased growing.

Dr. GORDON KING had recently removed a myxo-fibroma as large as a hen's egg, and found the site of attachment to be the ala of the nose.

Dr. WILLIAM LINCOLN (Cleveland) said that not all cases were so favourable as was that of Dr. Kyle in regard to distribution of blood-vessels. In a recent case of his own snares and forceps were useless, and he was obliged to remove the nose on one side, lay it over on the face, and so gain free access to the tumour. Adhesions were separated with the spatula, and the cautery was used. In removing the nose he had cut in on the sound side, so that the inevitable suppuration was discharged, not through the wound, but into the pharynx. The mass projected into the naso-pharynx, and needles were used here, as explained by Dr. Watson.

Dr. J. N. MACKENZIE gave the history of a case illustrating the occasional impossibility of removing these tumours through the internal passages. They might become rooted in many places. In one instance he had been compelled to turn the patient over to the general surgeon, who did a modified Langenbeck operation, dissecting out the growth in that way. Severe haemorrhage accompanied the procedure.

Dr. W. E. CASSELBERRY said that the tumour mentioned by the last speaker was probably a fibroma, while Dr. Kyle had spoken of myxo-fibroma, which was quite another form of neoplasm. The two conditions should not be confused, because the treatment of one was entirely different from that of the other.

Dr. KYLE, in closing the discussion, said that it was difficult to see why such soft growths should cause so much bony displacement.

Epithelioma of the Tongue, Early Diagnosis; Operation; Recovery.

The history of the case was presented by Dr. ROBERT C. MYLES, of New York. The patient was a man, aged sixty-four, who had been annoyed for a few weeks before coming under observation by a sensitive spot on the left side of the tongue, a little in front of the insertion of the palato-glossus muscle. At this site there was a small, hard, and roughened area suggesting malignancy. Iodides were tried without avail, and operation was decided on. This was done by Dr. J. A. Bodine, who thoroughly dissected out all the superficial and deep cervical glands and also the submaxillary, salivary, and sublingual glands, and much of the connective tissue along the jugular vein and carotid artery in order that many of the small undetectable lymphatics might be removed. Then, with heavy scissors, section was made of the affected area in healthy tissue at a distance of from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. from the margin of the growth. It was necessary to sever the left palato-glossus muscle and parts of the genio-hyoglossus, styloglossus, hyoglossus, and lingualis. This caused the tongue to curl upward at the tip and to fall back on the epiglottis at the left base. The patient made a good recovery from the operation, which was done six months ago. The microscopist reported that the growth removed was a squamous-celled carcinoma. The glands removed were somewhat inflamed but showed no metastases.

Dr. J. H. BRYAN, Washington, was very much interested in the subject of cancer of the tongue, and related the histories of two personal cases under his recent care. The fate of the patient

depended on the early recognition of the disease. The cases should be recognised in the pre-cancerous stage. Recurrence sometimes occurred on the side opposite to that of the original disease, because of the richness of the tongue in lymphatics, the circulation of which the raphe was not able to shut off. The glands ought to be excised on both sides.

Dr. J. N. MACKENZIE said that the Baltimore surgeons believed that the whole floor of the mouth ought to be excised.

Dr. GEORGE E. SHAMBAUGH, Chicago, said that he had had a recent case of cancer of the neck, which seemed to him to be rather unusual. He thought that the development of the tongue explained it. The anterior part of the tongue developed in halves, while the back part developed as a central piece. Dr. MYLES closed the discussion.

(*To be continued.*)

PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

One Hundred and fifteenth Ordinary Meeting, June 7, 1907.

J. B. BALL, M.D., *President, in the Chair.*

HENRY J. DAVIS, M.B., }
W. JOBSON HORNE, M.D., } Hon. Secretaries.

Present—47 members and 3 visitors.

The minutes of the previous meeting were read and confirmed.

Sir FELIX SEMON, K.C.V.O., M.D., was elected an honorary member of the Society.

The following gentlemen were elected ordinary members of the Society :

GEORGE K. GRIMMER, M.B., F.R.C.S.Edin.
WILLIAM GUTHRIE PORTER, M.B., F.R.C.S.Edin.
ALFRED JOHN MARTINEAU, F.R.C.S.Edin.

REPORTS OF THE MORBID GROWTHS COMMITTEE.

Dr. StClair Thomson's specimen from a case of malignant endolaryngeal growth (vide *Proceedings*, April 5, 1907, vol. xiv, p. 75) was found to be spheroidal-celled carcinoma.

Dr. StClair Thomson's specimen from a case of prolapse of the ventricle of Morgagni (vide *Proceedings*, *ibid.*, p. 76) was a soft

œdematous fibroma; it contained nothing but œdematos fibrous tissue covered by squamous epithelium. It contained no glands, nor anything suggesting that it originated from the ventricle.

Dr. FitzGerald Powell's specimen from a case of naso-pharyngeal growth (vide *Proceedings*, May 3, 1907, vol. xiv, p. 91) consists of a hyperplastic growth of lymphoid tissue, containing giant-cells, but not showing sufficiently clear evidence for a diagnosis of tuberculosis.

Dr. Dundas Grant's specimen from a case of malignant growth in the pharynx (vide *Proceedings*, May 3, 1907, vol. xiv, p. 94) is a squamous-cell carcinoma.

Dr. Lambert Lack's specimen from a case of laryngeal growth removed by thyrotomy (vide *Proceedings*, May 3, 1907, vol. xiv, p. 95) is a squamous-cell carcinoma, the columns of which are thinned, broken up, and in places disintegrated by granulation tissue, unusual in amount.

The following communications were made :

A CASE OF SARCOMA OF THE TONSIL, TREATED WITH X RAYS.

Shown by Dr. STANLEY GREEN. The patient, a man, aged fifty-eight, first noticed a growth on his right tonsil in June, 1906, and was under his club doctor for six weeks, but the growth got larger, he then went to the Lincoln County Hospital, and was an out-patient under Dr. Brook, and had large doses of iodide of potassium for two months. As the growth was increasing in size and he was losing weight he was advised to have an operation ; this he agreed to and the growth was enucleated. He says that the growth did not commence to grow again until January, 1907, but then the increase in size was very rapid. When I saw him on February 22 the growth was so large that the uvula was pushed over to the opposite side and he was able to swallow only liquid food and porridge, the mucous membrane covering the growth was bright red in colour, his breath was very offensive, and his weight was 7st. 6lbs.; there was a mass of enlarged glands in his neck as large as an orange, and it was stony hard ; he had now been taking iodide of potassium for seven months. X-ray treatment was commenced the same day, and was given both externally as well as internally ; the dose was always as large as I thought the tissues would stand, and as the sittings were separated by an interval of six to seven days I never caused more than an erythema of the skin. On April 15 there was only a small nodule

to be felt along the border of the sterno-mastoid, and I showed the patient to the members of the Lincoln Medical Society. The swelling between the pillars of the fauces was then about the size of a large walnut, and it continued to decrease in size until about a fortnight ago when he caught a bad cold, with the result that the growth has increased in size, but he can eat ordinary food, can do his work, and has already put on 8 lb. in weight.

The case is not cured yet, but I thought it would be of more interest to the members of the Society in its present condition than it would be next session, when the growth will probably have disappeared altogether.

There were twenty sittings in all, seven external and thirteen internal, and the total time that he has been under the rays is six hours forty-nine minutes. Microscopic examination revealed the nature of the growth to be sarcomatous.

The PRESIDENT said that apparently the point in the case was the improvement which had occurred, and on that members were not able to judge. Dr. Green said there had been a large mass in the neck, and that had now disappeared.

Mr. HERBERT TILLEY said that possibly the disappearance of some of the glandular involvement in malignant disease of the throat treated with X rays was due to the fact that the throat was made much cleaner by the treatment, and there was less septic absorption. He had in mind a case of his own, in which a large mass of malignant ulceration at the base of the tongue and the side of the pharynx was considered inoperable. There was also a large mass of glands in the neck. X rays were suggested, and they were administered with the same frequency as in Dr. Green's case. Three months afterwards practically all the glands had disappeared. It would be interesting to hear from Dr. Green whether the improvement was due to the parts becoming cleaner and there being less septic absorption, rather than that any metastasis had been caused to disappear. In answer to the President, Mr. Tilley said the growth which he had referred to became smaller and cleaner, but it was difficult to say what that was due to. He saw the patient ten months afterwards, and he seemed infinitely better. He did not know what had now become of him.

Dr. GREEN, in reply, said that what Mr. Tilley had suggested came into his mind, but there was not a foul condition present, and there was no ulceration. It was merely a large tumour, with inflamed mucous membrane, and he did not think there was enough in the throat to account for such a mass of glands in the neck unless they were malignant. The way in which the condition disappeared was very remarkable.

EPITHELIOMA OF THE LARYNX.

Shown by Dr. S. MORITZ. The patient, a man, aged fifty-three, came under observation three months before his death. The tumour had already then attained almost the size seen in the



EPITHELIOMA OF THE LARYNX.

Photograph of the posterior aspect of the larynx showing the epiglottis converted into an epitheliomatous tumour and the great obstruction to the air passage.

To illustrate a communication to the Laryngological Society of London,
June 7, 1907, by Dr. S. MORITZ.

photograph, the epiglottis being converted into a fungating mass and the interior of the larynx being invisible with the laryngoscope. The cervical glands were infiltrated, and the case was evidently too far advanced for operation. Speech was indistinct, but deglutition was only slightly impeded. Though the obstruction to the air-passages is apparently very great, the small amount of dyspnoea from which the patient suffered was remarkable; the air current evidently had to find its way through the upper part of the pharynx and from there through the partly destroyed posterior wall of the larynx. There was no sign of deglutition-pneumonia.

Sir FELIX SEMON said it was a very remarkable specimen. No doubt it was an absolutely fortuitous thing, but the formation of the new growth was such that it did not interfere very much with breathing, nor with swallowing. There was a space on the left side where the air could be sucked in through a narrow chink which had been left open there. He could not remember having seen a case of malignant disease exactly like that.

A CASE SHOWING THE RESULT OF RADICAL OPERATION FOR DOUBLE-FRONTAL AND ANTRAL SINUS SUPPURATION.

Shown by Dr. WATSON WILLIAMS. The patient had undergone double radical, frontal sinus, and antral operations. On the left side the frontal sinus had been dealt with by the Killian method, and on the right by a modified Delsaux operation. The frontal sinuses were enormous, and the ethmoid cells had been very extensively diseased. The result had proved very satisfactory as regards cure of the condition, and the cosmetic results left very little to be desired, although, as was inevitable, there was some—though very slight—depression on the forehead, owing to the size and depth of the sinuses, which had to be obliterated. He had removed, a short time before presenting him to the Society, some remaining ethmoidal cells, and these, as he pointed out, had not healed, and yielded still some muco-purulent secretion. The patient had been a great sufferer for many years from asthma, which had almost incapacitated him from business. Since the operation last January he had been quite free from asthma, and there was every reason to hope that he might be reasonably regarded as a case of asthma cured by operation within the nose.

Dr. D. R. PATERSON thought the cosmetic result would have been better if Dr. Williams had left a larger ridge on the left side. It showed a ridge now, and there would have been no disadvantage in leaving a wider plate of bone there.

A CASE OF EXTENSIVE SUBMUCOUS RESECTION FOR SEPTAL DEFLECTION UNDER LOCAL ANÆSTHESIA.

Shown by Dr. H. SMURTHWAITE. He brought the case forward, not from any novelty in the operation, but merely to show how extensive an operation one could do under local anaesthesia. The operation had been done under preliminary cocaine swabbing, followed by injection of novocaine and epinephrin. The patient experienced no pain, and there was no bleeding. Most of the triangular cartilage had been removed, together with part of the perpendicular plate of the ethmoid and the maxillary crest. The specimen was shown.

Dr. J. DONELAN asked how long the operation took, and what Dr. Smurthwaite's experience had been in other cases with novocaine. He had tried novocaine frequently lately, and he could not say that it possessed any advantages over cocaine as an anaesthetic, though it may be less toxic. With regard to operating under a general anaesthetic, it was a great advantage to have the patient quite steady; the operator might be disturbed by the patient moving. He also asked what was the influence of the general anaesthetic on adrenalin. His experience had been that adrenalin did not act so well then, even if it were used a quarter of an hour before the operation. Under chloroform anaesthesia the haemorrhage was apt to be less well controlled than when adrenalin was used for local purposes without a general anaesthetic.

Dr. STANLEY GREEN asked whether Dr. Smurthwaite had ever tried allypin in place of cocaine. The advantage afforded was that there were no toxic effects, and all met with patients who could not stand a large dose of cocaine. He also asked whether Dr. Smurthwaite usually put such cases first under chloride of calcium. His experience was that if the patient were given that drug for four or five days before the operation the haemorrhage was almost insignificant. He considered the patient would want the anterior half of the inferior turbinate removed before he was clear on the right side.

Dr. FURNISS POTTER said that he had had some experience of novocaine in connection with submucous resections, and had been much struck by its non-toxic effect in a case which had exhibited marked intolerance of cocaine, so much so, that merely spraying the nose with a 4 per cent. solution produced symptoms. He used a mixture of equal parts of 10 per cent. solution of novocaine and adrenalin 1-1000 applied on cotton-wool and kept in position for half an hour previous to operating. The patient bore the operation—which lasted about an hour—without any complaint of pain, and showed no toxic symptoms. With regard to involuntary movements on the part of the patient, he had never had any trouble. In the cases in which he had operated under local anaesthesia, the patients had said they felt no pain except when the maxillary crest was being chiselled, or the bony septum bitten with forceps, and that then the pain was slight. He agreed with Dr. Smurthwaite that it was much more satisfactory to perform the submucous resection under local anaesthesia than to have recourse to a general anaesthetic. He had the patient lying down with the head and shoulders raised.

The PRESIDENT asked why local anaesthesia was preferable, from the operator's point of view. He had heard this stated. With regard to the question whether adrenalin acted when a general anaesthetic was employed, he was sure it acted if one took the trouble to use it properly, and to allow half an hour or so for it to act.

Dr. PATERSON said that perhaps as one who had undergone the operation under local anaesthesia he might be allowed to give his experience. It was absolutely painless, the only thing he felt being the pressure of the speculum on the nose. It lasted half an hour, and was a fairly extensive operation. He did many of his own cases under local anaesthesia. With anxious, apprehensive patients one was obliged to use a general anaesthetic. He always liked the patient in the sitting posture. If the patient felt frightened or faint, it was good to have him reclining on a couch with an adjustable back. From the patient's point of view local anaesthesia was a simple and easy matter. From the operator's point of view the position was the normal one for nose work, and one could get a more satisfactory view of the floor of the nose, which was more difficult with the patient lying down. On the other hand, in a long sitting it was necessary to stop the operation where a general anaesthetic was used, in order to administer more chloroform, and also on the occurrence of sickness, which brought the risk of stomach contents getting into the nose.

Mr. F. H. WESTMACOTT said he had tried both forms of anaesthesia, and had found it quite easy to see the floor of the nose with general anaesthesia. He had the patient lying on the operating table, with the head well over the end, the head being held in the same position as in the operation for post-nasal growth. He had never yet taken an hour over the operation.

Dr. WILLIAM HILL thought there were at times disadvantages in doing the operation under a general anaesthetic, more especially in the matter of haemorrhage. He preferred a general anaesthetic when the patient was a nervous lady, or a person who had not any great fortitude. He had had some people collapse in the chair who had had a local anaesthetic, and in one instance this was after novocaine.

Dr. SMURTHWAITE said he had never done the operation under chloroform, and he did not like to attempt it; he followed the line of least resistance. He saw the first operation done under local anaesthesia, and he copied his teacher, and had done it ever since. If he had not seen that done in Vienna he might have used a general anaesthetic until he had a mishap. It must be admitted that a general anaesthetic was a danger, but what danger had been traced to local anaesthesia? Moreover, one could guarantee that the patient would be about sooner. He did it with the patient sitting upright in a movable chair, and directly the patient felt faint down came the chair. There was more bleeding under chloroform with adrenalin than in the case of local anaesthesia; in fact, in the latter case there was often no bleeding until after the operation. There was no bleeding until the maxillary crest was chiselled away. It was only in the last two months that he had tried novocaine. He had also been trying epinephrin, which was cheaper than adrenalin, and it acted just as well.

A CLERGYMAN WITH EXTENSIVE TUBERCULOUS LARYNGITIS, WHICH HAD RESISTED TREATMENT BY SANATORIUM METHODS, SILENCE, LOCAL ANTISEPTICS, AND ESCHAROTICS. NOW COMPLETELY CICATRISED SINCE FIFTEEN MONTHS BY LOCAL TREATMENT WITH THE GALVANO-CAUTERY.

Shown by Dr. STCLAIR THOMSON. The patient entered a sanatorium in June, 1902, with tubercle bacilli in his sputum, and involvement of the right upper lobe. He was due to return home at Christmas, 1902, with the lung process quite arrested, when he suddenly developed laryngitis, which proved to be tubercular. He therefore remained on till Christmas, 1903—*i.e.* he gave sanatorium treatment and silence another year's trial. •

He came under my treatment in March, 1904, with tubercular disease of the left vocal cord, the left ventricular band, the anterior arytenoid region on both sides, and part of the right ventricular band. The left vocal cord was ulcerated in its whole extent.

The patient was kept upon sanatorium principles, and the larynx insufflated daily with iodoform for three months. Owing to the skill and kindness of Dr. Gambier this treatment was carried out at St. Leonards.

In June, 1904, a portion of the tissue was punched out, and the wound painted with Lake's strong mixture (carbolic acid 10 parts, lactic acid 50, formalin 10, water 30). The removed portion showed tubercle. Painting and insufflations were carried out until September, 1904, when the first application of the galvano-cautery was made. In February, 1905, after six applications and strict silence, decided improvement had taken place. The patient was allowed to speak in May—*i.e.* after seven months of silence—but ten more applications of the cautery were made, extending from February, 1905, to March, 1906. At this date his larynx was soundly healed. He had re-commenced some clerical duties in November, 1905, and in May, 1906, he resumed preaching and also smoking. Last summer he acted as a continental chaplain, and last winter he not only carried out the same duties single-handed, preaching two sermons every Sunday, but he also skated, tobogganed, and luged.

He never "catches cold," or has laryngitis. When examined during respiration it will be seen that the anterior third of the left vocal cord is concealed beneath the scarred margin of the ventricular band, but on phonation a good new cord comes forward. Extensive cicatricial tissue is seen on nearly all the left ventricular

band, the inter-arytenoid region, the posterior end of the right ventricular band, and the region in front of the right arytenoid, which Dr. Jobson Horne has frequently called attention to as being the vulnerable point. It will be seen that healing was established and voice use allowed after six monthly applications of the galvano-cautery, and that, in all, sixteen applications were made.

One rough sketch indicates the extent of the disease, and the other shows the sites of cauterisation, frequently eight points being made at one sitting.

Mr. BARWELL congratulated Dr. StClair Thomson on the result. Although he had not seen the case before operation, the cord was now healthy, and there seemed to be no active disease there, and there was only slight thickening of the band. It was his intention now to try the galvano-cautery in some of those cases. He thought it would act best in such a case as the present, where the infiltration was somewhat scattered and not massive. He was glad to see that Dr. Thomson employed active treatment in some cases of tuberculous laryngitis.

Sir FELIX SEMON said the galvano-cautery had recently been again warmly recommended by Grünwald in certain cases of laryngeal tuberculosis. He (Sir Felix) could not speak from personal experience in cases of tuberculosis, but he had cured a most extensive lupus of the larynx by means of the galvano-cautery. Had it not been for the perseverance of the patient, however, he would not have gone on with it. The cure, which was reported about sixteen years ago, had remained complete to the present day. He earnestly hoped the negative result of the silence treatment in this case would not deter members from trying the method, irksome as it was. He referred his hearers to a paper published that day in the *British Medical Journal*, by Drs. Bardswell and Adams, from King Edward's Sanatorium, setting forth a number of cases which had been cured, either by silence alone or by that method combined with local measures.

Dr. STCLAIR THOMSON, in reply, said he would be the last person to say anything against the silence treatment of tuberculosis of the larynx. He thought it had been a great advantage that his patient had been kept on the silence treatment during the first six months' treatment with the galvano-cautery, and this had helped to avoid a reaction. He was cured with fifteen applications of the galvano-cautery, and, if the number of sittings was small, it was compensated for by the number of punctures made at each sitting. He went deeply into the tissue until he struck healthy tissue. The tubercle had been completely arrested in the chest before the larynx was treated.

TWO DISSECTED SKULLS TO SHOW EXTENSIVE ETHMOIDAL-FRONTAL CELLS.

Shown by Dr. STCLAIR THOMSON. In both these skulls the frontal cell was small and easily reached. When viewed from above the presence of the large ethmoidal-orbital might readily be overlooked, but on viewing them from below the supra-orbital

ridge it was seen that this cell ran a long way backwards and outwards in the orbital roof. The skulls were shown to demonstrate the fact that it was utterly impossible to reach such a large ethmoidal cell from the nose, and that the only way of reaching it from the outside would be by a complete Killian operation.

The PRESIDENT said if there had been any doubt in anybody's mind about the possibility of treating the anterior ethmoidal cells effectually through the nose these specimens must settle the question.

Mr. WESTMACOTT said he was still unconvinced that it was necessary to open up from the front in such cases. In both the skulls exhibited there was simply an aberration of the first basal plate of the ethmoid. In the one case the basal plate was incomplete; there was a fronto-ethmoidal cell, but somewhat external to the usual situation, and over the orbital cavity. In the half-skull there was not a failure of the basal plate, but rather a deviation. Instead of coming up in the transverse method, it was twisted, coming out antero-posteriorly, and shutting off a cell in the roof of the orbit, which might be termed the anterior ethmoidal cell, pure and simple. In both of them the dependent point was downwards and into the infundibulum, and if one removed the anterior end of the middle turbinal and opened up the ethmoidal labyrinth with punch forceps from the interior of the nose there would be drainage into the nasal cavity; if there were granulations coming down from the frontal sinus and other cells in that region, and one wished to remove them by scraping or any other radical measure, it would, of course, be necessary to operate from the front. He maintained that those cells, by appropriate treatment, opening up from the interior of the nose, would drain into the nose, and one could wash out the cavities and use instillations in a manner which would prove satisfactory in most cases.

Dr. W. HILL asked why the current name "fronto-ethmoidal cell" should not be applied to what Dr. Thomson called "ethmoidal-orbital"? A fronto-ethmoidal cell did not normally communicate with the frontal sinus. He maintained that those indicated were the genuine fronto-ethmoidal cells which one opened every time one performed a radical operation for frontal sinusitis. Moreover, the cells could be seen opening at the typical place in the nose. The ethmoidal part of the cell was rather small, and the frontal part was very well developed in the specimens shown.

Dr. LAMBERT LACK said he thought the practical point had been rather overlooked. After the anterior ethmoidal cells had been opened up as freely as possible, if there was still pus coming down from the anterior ethmoidal region one would probably diagnose suppuration in the frontal sinus, proceed to do a radical frontal sinus operation, and then those cells would be opened. It did not matter whether it was an ethmoidal cell or the frontal sinus; if it was diseased, obviously an external and extensive operation would be necessary, as if it were a frontal sinus. The occasional presence of such a cell was no argument against attempting to operate on the ethmoidal cells from the nose.

Dr. HERBERT TILLEY agreed with Dr. Lack. Yesterday afternoon he had an illustration of his contention in a patient who had had four operations done on the frontal sinus, but there was still two suppurating fistulae, which came out above and below Killian's bridge. Yesterday he opened up the sinus, and the whole trouble was discovered at the back of the sinus, where there was a small suppurating cell extending backwards

nearly to the small wings of the sphenoid. It had infected the floor of the sinus, and it could not have been reached from the nose—it was too lateralised. He could only deal with it by taking away its lower wall, so as to expose the roof of the orbit, and let the orbital tissues rise into it. That was really the essence of Killian's operation. The fronto-ethmoidal cells, which spread outwards or backwards through the roof of the orbit, would infect the most complete operation one could do on the frontal sinus, and such cases could not be cured, and got dry unless those cells were obliterated.

Dr. PATERSON said the cells in question were part of the frontal sinus. It was the orbital recess which was often partially shut off by thin septa from the main part of the sinus, and in both those specimens the septa were rather imperfect. It was described in Killian's atlas as the orbital recess of the frontal sinus. He knew the recess from practical experience, because in very extensive operations which he had to do in connection with the sinus it was found very large, and it was necessary to strip off the periosteum from the plate of the orbit before getting to the bottom of it. He did not think it would be necessary to excise the eyeball to get at that part as had been suggested. It meant simply that if one stripped the periosteum from the orbital plate, and held the contents of the orbit aside, one could, with Hartmann's conchotome, get at the deepest part of it. He got at it from below the bridge. He had two cases quite recently which he had so treated with excellent results, and which amply confirmed Dr. Thomson's contention.

Dr. STCLAIR THOMSON, in reply, said there was a risk in working from below, because of the liability to push upon the eye: and he had heard of a bad result from that in Berlin. It did not matter whether the space was called "fronto-ethmoidal," or "ethmoido-frontal," or "frontal recess." He used the term "orbital-ethmoidal" to indicate that it ran over the orbit. Dr. Westmacott rather questioned whether it should be treated surgically, but that subject must be left for another day. He brought the skulls forward to show that if the frontal sinus and its accessories were to be treated surgically he saw no means of getting at it except by the complete Killian, without the so-called modification of it in any way. He thought the most important cause of disasters in the past was the overlooking of those cells, where suppuration got cut off.

SPECIMEN OF DEGENERATED ETHMOIDS REMOVED FROM A CASE OF MULTI-SINUSITIS.

Shown by Dr. STCLAIR THOMSON. This specimen consisted of the degenerated ethmoid, and, when freed of all blood and liquid at the time of operation, weighed exactly 4 oz. There had been complete obstruction of the nostrils.

CASE OF ADHERENT SOFT PALATE AFTER OPERATION FOR ITS SEPARATION.

Shown by Mr. H. BETHAM ROBINSON. A boy, aged seventeen, came to St. Thomas's Hospital in September, 1906, with complete adhesion of his soft palate to the posterior pharyngeal wall, no nasal respiration, and absolute deafness. Since early life he had

been deaf, and had been troubled with accumulation of mucus in the nasal cavities. He had had the "blight" in his eyes, and now he shows slight corneal opacities due to old keratitis. He had had also discharge from his ears, and the right drum was cicatricial, and the left one had a large perforation. His teeth are bad, but they give no distinctive evidence of congenital syphilis. Congenital syphilis was, however, regarded as the cause of the adherent palate. His condition was so wretched that I determined to give him relief by separating his soft palate.

On October 13 I separated the palate from the pharynx freely from side to side; at its attachment it was a full quarter of an inch thick. The freed palate was prevented from again uniting in the following manner. A piece of lead plate was cut the full breadth of the naso-pharynx, and it was bent so that one arm of it rested on the dorsal surface of the soft palate and the lower on the buccal surface, the cut margin being received between the plates and apposed to the bend, and so kept away from the pharyngeal wall. Silk threads were fixed to the four corners of the piece of lead; the two from the upper corners passed one through each nostril, and the lower two passed forward across the hard palate between the lateral and central incisors on each side. The upper and lower threads on each side were then tied together in front over the lip, but they were prevented from cutting by being passed through pieces of rubber tubing. After the first day he had comparatively little trouble, being able to swallow fluids and other soft food without any special complaint. Aristol was blown into the nose and over the palate surface daily. The lead plate was not removed for a fortnight, by which time it was considered sufficient healing would have taken place to prevent re-union. Bearing in mind the almost certain specific origin of the mischief he was put on iodide of potash directly after operation to hasten the healing. At the end of eight months there is not the slightest contraction. By Politzerisation and passing the catheter his hearing has been restored to almost normal, and he is able to breathe freely through his nose. To sum up: the lad, by the operation, has become quite bright and intelligent instead of a worry to his relatives from his previous helpless state.

Mr. TILLEY congratulated Mr. Robinson on an excellent result in a very intractable class of case.

Dr. LIEVEN said it was a very good result, but it was necessary to be very careful in those cases. This one was successful because the adhesion was horizontal and was very thick, a slit thus resulting. In many of those cases of adhesion there was atrophy of the velum. Therefore in

operating the hole sometimes got too large and the patient might be worse off than he was before, because from that moment they could not eat and drink properly, food and liquid getting into the nose. He had had such a patient, who told him he was much worse after the operation for that reason. There was always the chance that the hearing might be improved if the patient was not too old. It was a very clever idea to pass strings afterwards through the nose. He had heard the same idea spoken of by Professor Hopmann, of Cologne, who used to put india-rubber strings through the nose to hold the velum forwards so that he could get at the naso-pharynx. But he doubted whether a nervous patient would stand those strings for a fortnight. He recommended the use of a little instrument which he brought forward fourteen years ago, an indiarubber tube which led into a ball of the same material. It was put into the nose by a Belloc sound, and the patient himself filled it with air when the ball had arrived at the naso-pharynx, and that exerted active pressure against the cicatrical contraction. It mostly worked in the direction of least resistance, *i.e.* towards the opening which the operator had made. If that were put in at the beginning twice every day for a few hours, and applied less and less as time went on, there would be a very good result.

Mr. ATWOOD THORNE asked how long it was since the operation was done, and how long the appliance was kept in.

Mr. ROBINSON, in reply, said the operation was done on October 13 last, so he thought it had stood the test of time. The appliance was kept in for a fortnight.

LARYNGEAL FORCEPS FOR USE IN DIRECT LARYNGOSCOPY.

Shown by Dr. STCLAIR THOMSON. These forceps are made with several extremities, which can be attached to the one barrel. The handle is well out of the way and allows of clear vision.

FORCEPS FOR THE REMOVAL OF NEW GROWTHS AND THE EXTRACTION OF FOREIGN BODIES FROM THE LARYNX AND ADJACENT PARTS BY THE DIRECT METHOD.

Shown by Dr. JOBSON HORNE. The instrument is constructed on the rod and cannula principle, the blades closing by traction and not by a joint. It is intended for use, as shown in the drawing, through a tubular spatula. The shaft is placed at an angle to the handle. The blades are also placed at an angle to the rod, and are made sharp, blunt, or serrated, to meet the requirements of the case, whether it be a growth or a foreign body to be removed, some operators preferring blunt before sharp instruments for removing laryngeal growths of a pedunculated nature. The cannula can be rotated and fixed in any position. The advantages claimed for the forceps are :

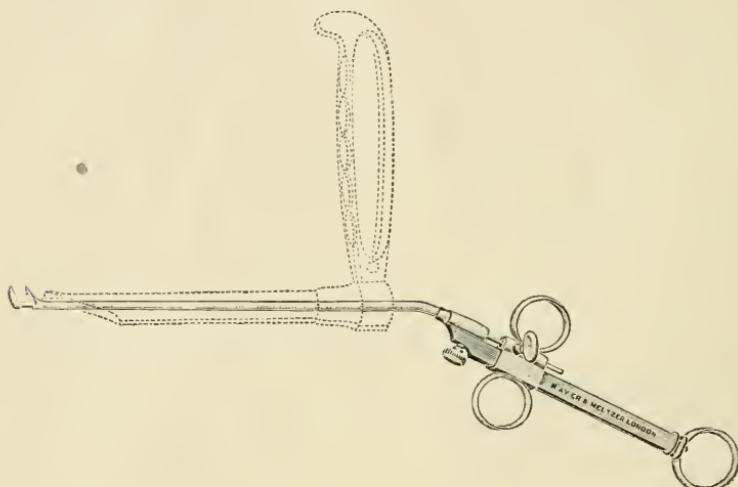
(1) That it occupies the minimum amount of space within the

tubular spatula and the field of operation; the line of vision is not obstructed by the instrument used.

(2) The closing of the blades, by traction gets rid of the "kick" occasioned by a forceps closing on the hinge or joint principle.

(3) The small spoon-shaped blades, by being placed at an angle instead of in the same straight line, can be insinuated by the side of foreign bodies and into all parts of the larynx. This is particularly advantageous in removing growths from the anterior commissure and recesses of the ventricles.

The instrument has been made for me by Messrs. Mayer and Meltzer, of Great Portland Street, London.



Dr. PATERSON thought the forceps exhibited were exceedingly useful. There was one used by Edmund Meyer, of Berlin, which closely resembled that shown by Dr. StClair Thomson, and he himself had used it from time to time. On the whole he found his own forceps very adaptable, and, perhaps, more powerful than either of those shown that day.

EPITHELIOMA OF THE LARYNX.

Dr. JOBSON HORNE exhibited two macroscopic specimens of epithelioma of the larynx from patients who had undergone complete laryngectomy. For the specimens he was indebted to Mr. F. G. Harvey, who, as members of the Society knew, was one of the pioneers in the further development of the operation. The operations were performed by Mr. Harvey, at the Throat Hospital, Golden Square, as far back as 1901. In one case the patient was known to be living twelve months after the operation, whilst, in the



I. EPITHELIOMA OF THE LARYNX.

Photograph of the posterior aspect of a larynx removed by complete laryngectomy.

To illustrate a communication to the Laryngological Society of London,
June 7, 1907, by Dr. JOBSON HORNE.



II. EPITHELIOMA OF THE LARYNX.

Photograph of the posterior aspect of a larynx removed by complete laryngectomy.

To illustrate a communication to the Laryngological Society of London,
June 7, 1907, by Dr. JOBSON HORNE.

other case, the patient, after recovering from the operation, died within that period of time. Some account of the first case will be found in the series of cases reported by Mr. Harvey to the *Lancet* in 1901. Dr. Jobson Horne exhibited the preparations—which showed the larynx in each case entire, and the colouring preserved by the formalin method—as instructive pathological specimens illustrating the stage of the disease in which complete laryngectomy is the only operation admissible.

A CASE OF NÆVUS OF THE TONGUE.

Shown by Mr. STUART-LOW. He said that he had shown this case because it was unusual to find such a large nævus of the tongue in such a young patient. The girl was now twelve years of age, and being an orphan, had been in the same institution since she was three years old. The nævus was situated on the right side of the tongue on the anterior third; it was now the size of a florin, but at the age of three it was only as large as a bean. It was said to have grown rapidly during the last year. Mr. Stuart Low proposed to incise the whole growth with scissors, and stitch the cut surfaces.

Dr. DAVIS thought electrolysis would cure it.

A CASE OF CHRONIC FRONTAL SINUS DISEASE.

Shown by Mr. STUART-LOW. He said that this young woman was operated upon by him one month ago that day for chronic frontal sinus disease. The disease had existed for quite seven years, and during the past year she had suffered severely from frontal headache and had had much nasal discharge. Having opened the sinus it was discovered to be quite full of mucous polypi, and the partition between the two sides having been partially removed, the opposite sinus was found in a similar condition. It was found necessary to remove a considerable portion of the anterior bony wall of the sinus, and to obviate the deformity usual after this from falling in of the soft structure, Mr. Stuart-Low had inserted a thin, perforated, silver plate over the opening in the bone. The wound was doused with fresh lamb's blood serum, as explained in an article in the *Lancet* on May 7, 1907, which seemed to facilitate the healing process, and a protective shield worn to avoid bandage pressure. The wound healed by first intention, and the silver plate had remained in position well and so prevented any

blemish from sinking in of the skin. The patient was only four days in the hospital, and now expressed herself as free from pain and offensive nasal discharge.

TUMOUR OF THE PHARYNGO-GLOSSUS, NOT MALIGNANT; POSSIBLY OF THE NATURE OF A DERMOID OR ACCESSORY THYROID.

Shown by Dr. DUNDAS GRANT. A female patient, aged twenty-three, complains of difficulty of speaking and swallowing which has been marked for one year, although it had been gradually developing for about five years. Her voice has the characteristic thickness associated with pharyngeal obstruction. The pharyngeal portion of the tongue is almost entirely occupied by a rounded swelling of comparatively smooth surface and red tint, and with vascular ramifications under the mucous membrane. It is elastic to the feel as if cystic in nature and there are no enlarged glands. It has not been punctured or incised. It is more probably thyroid than dermoid in view of its projection into the pharynx instead of into the sub-maxillary region. The exhibitor considers it non-malignant and hopes to be able to extirpate it through the mouth, but will be guided by the degree of accessibility as attained under an anæsthetic.

Mr. CRESSWELL BABER said it reminded him of a case which he showed some time ago, of thyroid tumour at the base of the tongue (*Proceedings* of this Society, vol. ii, p. 1). In his case the tumour was about the size of a walnut, and it was removed with the galvano-cautery snare. It also occurred in a young woman.

Mr. WESTMACOTT said it appeared to be of the nature of a retention cyst in the thyro-glossal duct. Ten years ago he went through all the recorded cases of that character, but in none of the cases which he looked up was there any dermoid tissue found in the thyro-glossal duct of His.

SOFTENING GUMMA ON EXTERNAL SURFACE OF LEFT ALA NASI.

Shown by Mr. HERBERT TILLEY. Patient is a male, aged twenty-five, who had syphilis five years ago. The left side of the nose has increased in size during the past four weeks and produced considerable external deformity. At the present moment almost the whole extent of the left side of the nose is occupied by a red, edematous, semi-fluctuating, tender swelling the size of half a walnut. No intra-nasal swelling can be seen in the left nasal cavity, neither is the septum deflected to the right in its upper portions. The patient has been put on full doses of iodide of potash.

PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

Ordinary Meeting held on Friday, May 10, 1907, at 11, Chandos Street, W.

Dr. ROBERT WOODS (Dublin), *President, in the Chair.*

Reported by Dr. DAN MCKENZIE, *Hon. Sec.*

The PRESIDENT showed a *Case of Accidental Cut Throat in a Woman aged thirty.*

The patient had been projected from a motor car through the window of a moving tram, with the result that every structure in the neck had been divided back to the vertebral column, the incision passing through the thyro-hyoid space.

When the patient came under observation she had recovered from the wound. A dense cicatricial diaphragm had grown between the bodies of the vertebrae behind and the epiglottis in front, closing the throat at the level of the hyoid bone and completely separating the mouth and pharyngeal opening from the trachea and gullet below.

A silver tube inserted through the thyro-hyoid membrane served the double function of enabling the patient to breathe and permitting a rubber oesophageal tube to be passed for the purpose of feeding. The pharynx above the diaphragm held a pool of saliva and mucus which could only be emptied by the patient holding her head forward and allowing the fluid to gravitate out. She had not spoken or breathed through her mouth for fifteen months.

The case presented some exceptional difficulties. An opening might have been made through the diaphragm and a Symonds' tube introduced through the mouth and brought into the gullet, thus enabling her to swallow, but this would not get over her loss of speech.

Or a tube might have been introduced through the diaphragm by which she could breathe and talk, but there would be nothing to prevent the saliva overflowing and dropping into her larynx and trachea. The latter seemed by far the best plan, if only the difficulty of the saliva could be overcome. This was accomplished as follows: A careful search was made and a pin-hole opening found

in the diaphragm, this was dilated by a series of bougies worn for some days at a time, and gradually increased in size until the opening was made as large as that of a large tracheotomy tube.

A specially constructed tube was then introduced through the diaphragm. This tube contained a "by-pass" through which saliva, when it accumulated in the gutter round the pharyngeal end of the tube, could be abstracted by a suction apparatus which the patient carried attached to her girdle, and which consisted of a small air-pump communicating with a saliva reservoir. By means of this device the patient could talk and breathe quite naturally. The saliva caused her no inconvenience, as its removal was only a question of working the piston of the air-pump once or twice.

Dr. DUNDAS GRANT congratulated the President on the marked success which had attended his ingenuity in dealing with the difficult state of matters present in this case. His observation that the woman had been delighted at her renewed ability to breathe through her nose reminded Dr. Grant of a case he had shown at this Association some years ago. This was a girl who had worn a tracheotomy tube for sixteen years, which had been inserted for obstruction arising from papillomata in the larynx when she was four years old. These were removed by Dr. Grant at one sitting, and the patient was again able to breathe through the nose. Her expression of delight as she took her first sniff was most impressive.

Mr. J. BARK congratulated the President on the extreme ingenuity displayed by him in the treatment of this most interesting and exceptional condition.

The PRESIDENT, in reply, thanked the Fellows for their generous remarks. The only objection he could find in the instrument was that it had been devised to overcome difficulties which might never again be encountered by anyone until the means he had adopted had been quite forgotten.

Mr. STUART-Low showed a *Case of Frontal Sinusitis in a Girl*, associated with epilepsy, where no fit had occurred since the operation of opening the sinus had been performed.

The patient was a young woman. The left frontal sinus had been operated on three months ago, when it was found to be packed full of mucous polypi. The sinuses of both sides were cleared out through the one opening, the partition being removed. This constituted one remarkable feature of the case.

The other noteworthy point was that since the operation the

patient had had no epileptic fits, although she had been subject to them for many years, having had one in the hospital under his own observation. The headaches and the discharge, for which he had sought relief, were now remedied.

The eyebrow was not shaved at the operation, and the special protection-shield he had devised for these cases was worn after.

Dr. GRANT congratulated Mr. Stuart-Low upon the result of this case, which showed that what might be called the minor form of operation was frequently most successful; and this one should remember before proceeding to carry out the full and complete radical operation devised by Killian, successful though it was.

Mr. BARK congratulated Mr. Stuart-Low on the satisfactory result of his operation: the cessation of the epileptic symptoms was especially noteworthy.

Mr. NOURSE said he had recently under his care a case of epilepsy in which there was also sinus suppuration. Operation on the antrum and frontal sinus of the affected side of the nose had not, however, so far influenced the number or severity of the fits.

Dr. DAN MCKENZIE said that the interesting point in this case was the epilepsy. On inquiring into the history he had found that the patient had had three definite attacks, or fits, the last in hospital just before her operation and witnessed by Mr. Stuart-Low, who was quite assured of its epileptic nature. The previous attacks, however, of two of which only there was a definite history, had taken place one in infancy and one at the age of twelve. Over and above these attacks, which might be termed *grand mal*, the patient had been long a sufferer from vertiginous symptoms without loss of consciousness, which, the speaker said, might or might not have been *petit mal*. Since the operation on the frontal sinuses the giddiness had not quite disappeared, but it was less troublesome. Thus he did not think that Mr. Stuart-Low claimed that the operation had entirely removed these epileptiform seizures.

The PRESIDENT said it was, of course, too early to suppose that the operation had cured the epilepsy. He had been specially struck with the success of the operation itself, the small, inconspicuous scar, and the absence of pus in the interior of the nose.

Mr. CHICHELE NOURSE read *Notes of a Fatal Case of Cerebral Abscess and Meningitis*.

The patient, a hearty man, aged sixty, was said to have had a discharge from the right ear for about twelve months. After

attacks of pain in the right ear for three months at intervals, his illness began on March 25 with a definite rigor. The following day he had a second rigor, which was well marked and lasted fifteen minutes, and simultaneously the pain in the ear became much worse.

On March 29 the patient vomited, and on March 30 headache began in the forehead and round the occiput. He got up a little while that day and staggered about. The next day drowsiness and delirium set in; there was also fever.

The patient was first seen in consultation on April 2. He was then very drowsy, but could be roused temporarily to answer questions and to adjust his position, and he was slightly delirious. There was some cough, which had appeared for the first time that day. Examination of the chest showed that there was no pneumonia, but there were bronchial râles, back and front. The headache from which he had previously suffered had passed off; there was no mastoid tenderness. There was chronic suppuration of the right middle ear, with some foetor.

The patient was at once removed to the hospital, and was able to walk, with assistance, from the cab to his bed. The same evening he became semi-comatose, and it was scarcely possible to rouse him. The pupils were contracted; the light response was feeble, and the right pupil slightly smaller than the left. There was no optic neuritis. The right upper eyelid closed more tardily than the left.

During examination of the ear with Siegle's speculum a large piece of cholesteatomatous material was sucked out from the attic. The following morning the patient's condition was becoming gradually worse; there was retention of urine.

A radical mastoid operation was performed at midday. Just before reaching the antrum a drop of very foetid pus welled up from some chink in the bone. The antrum contained cholesteatoma. On removing the outer wall of the aditus about two drachms of inodorous pus gushed out, and it was found that the roof of the attic and aditus was carious and that there was a perforation in the bone exposing the middle fossa. This was enlarged, and it then appeared that there was a ragged opening in the dura, through which a cerebral abscess had found an exit. The bony opening was then freely enlarged, and the abscess emptied. A drainage tube was inserted into the cavity and brought out behind the ear. The wound was not closed. A dry dressing was applied.

The pus contained diplococci, staining by Gram's method. The

following day, as there was no alleviation of symptoms, a further operation was performed.

The groove of the lateral sinus was opened and nothing abnormal found. The middle fossa was then trephined; the dura bulged strongly and did not pulsate. The temporo-sphenoidal lobe was explored, but no further abscess was found. The lateral ventricle was tapped, and much cerebro-spinal fluid escaped. The cerebellum was also explored and no pus found. The patient died on April 5.

Autopsy.—The body was well nourished. On opening the skull, the meningeal veins were much congested, with diffuse opacity of the arachnoid. There was extensive basic meningitis, and pus between the dura and the arachnoid. The ventricles were greatly distended with pale straw-coloured opaque fluid.

A cerebral abscess existed in the right middle temporo-sphenoidal lobe, passing obliquely upwards and forwards for four centimetres. It contained no pus, and the wall of the cavity was smooth.

The surrounding brain matter was healthy. There was caries of the antrum and attic.

The menigeal pus yielded pure diplococci, staining by Gram's method.

Mr. BARK said this was one of those unfortunate cases in which the aid of the specialist had been sought too late to be of any service.

Dr. DAN MCKENZIE had had the privilege of watching the case while under Mr. Nourse's care at hospital. The lesson of the case seemed to be that the general public did not, even at this time of day, sufficiently appreciate the perils incurred by a person suffering from suppuration in the ear.

Dr. DUNDAS GRANT drew attention to the disproportion between the pulse-rate and the temperature which the chart of this case showed. He recollects a case of lateral sinus pyæmia which was under his care some years ago, and in which the same kind of disproportion was present. No attention had been paid to the phenomenon during the patient's life. But as the *post-mortem* revealed, in addition to the sinus disease, an encephalic abscess, Dr. Grant was inclined to regard this disproportion as a sign of value in the diagnosis of cerebral abscess.

The PRESIDENT agreed with the previous speakers that the important feature of the case was the unfortunate lapse of time between the onset of cerebral symptoms and the transfer of the

case to the hands of the surgeon. One reason why such cases were occasionally permitted to run on too long was that, unlike acute peritonitis from some abdominal condition, these cerebral complications of middle-ear suppuration were comparatively uncommon. None the less we should always be prepared for them.

This was the last meeting of the Association prior to its amalgamation with the new Royal Society of Medicine, and Dr. Dundas Grant read a paper giving an account of the history of the Society since its inception.

Abstracts.

FAUCES.

Hamm, A., and Torhorst, H. (Strassburg).—*Contributions to the Pathology of Keratosis pharyngis, with especial reference to the Bacteriology of the Disease.* “Archiv für Laryngol.”, vol. xix, Part III.

The writers of this paper consider that the evidence brought forward by Liebenmann, and supported by the anatomical and bacteriological studies of Onodi and Entz, is sufficient to prove that the leptotheix is of no aetiological importance in keratosis pharyngis. They cannot, however, agree with the view of the last two authorities that the cause of the disease is an epithelial proliferation due to slight but repeated inflammatory attacks, since, apart from other considerations, subjective symptoms are not infrequently absent.

Microscopical examination of tonsillar tissue removed from three cases of the disease showed the characteristic cornification of the epithelium lining the crypts, which were much widened by the horny masses. The horny change was not confined to the crypts, but extended over the surface of the tonsil. Instead of the diminution or absence of the cells of the Malpighian layer, described by Onodi and Liebenmann, this layer was found to be well represented, and in places even increased where the horny masses were greatest. Bacteriological examination of the plugs in each of the three cases showed, in addition to many of the organisms belonging to the ordinary flora of the mouth, numerous leptotheix threads and large numbers of a capsulated bacillus. The authors give the results of a careful study of this bacillus, which they are much inclined to regard as responsible for the disease. It is a short, rod-shaped organism with rounded ends, and is non-motile and sporeless. A prominent feature is the broad mucoid capsule which surrounds it. This capsule, which is well developed under all conditions of growth, stains best by Heim's method or with Giemsa's stain. The bacillus itself is stained by all the aniline dyes, and decolourises rapidly by Gram's method. It grows easily on all

the ordinary culture media, and displays a marked pathogenicity. White mice die of typical septicæmia sixteen to forty-eight hours after subcutaneous injection. The power possessed by the bacillus in each of the three cases of forming acid from different kinds of sugar was compared, after the method of Bertarelli, with that of other members of the capsulated bacilli. The result was that the bacillus present in two of the cases showed, both in this respect and in general cultural characteristics, a close relationship to the *Bacillus pneumoniae* of Friedländer and the ozæna bacillus, while the organism present in the third case resembled rather the *Bacillus aerogenes lactis*. That bacilli not completely identical with one another may be responsible for one and the same disease, the authors would explain by the presence in each case of the broad homogeneous capsule devoid of limiting membrane. Dr. Hamm has shown that this capsule consists of nucleo-proteid, a substance well known to be an excellent vehicle for the transmission of ferments. The authors regard the facility afforded by this abundantly secreted mucoid substance for the continuous action of a virulent poison upon the cells of the mucosa as the probable cause of the keratinisation of the epithelium.

Agglutination experiments were conducted with a view to deciding the question as to whether or not the bacterial products were absorbed into the general system. They were, however, not conclusive.

Thomas Guthrie.

NOSE AND ACCESSORY SINUSES.

(1) **Mosher, H. P.**—*A Case of Fatal Meningitis after Removal of the Anterior End of the Middle Turbinate; (2) Tobey, G. L., jun.—Fatal Result from Intra-nasal Operation.* “Boston Med. and Surg. Journ.,” May 30, 1907.

These papers may be taken together. The first case was a man, aged fifty, whose left middle meatus was “full to overflowing with pus.” The operation was done to gain room for systematic examination for the source of the pus, which had been present some years. The middle meatus was packed with sterile gauze, which was removed next day, and the antrum syringed. Severe frontal headache was complained of. The patient returned home, and became irrational; was re-admitted two days later with septic meningitis. The frontal sinus was opened and found full of pus, the antrum entered *via* the canine fossa, the ethmoid curetted, and the sphenoid opened. Everywhere was foul pus. Patient never regained consciousness, and died within twenty-four hours. No autopsy. Mosher believes the packing walled back the pus and infected the meninges through the cribriform plate. He wishes he had opened the cranial cavity.

The second case was a man, aged fifty-eight. Muco-pus from anterior and posterior nares fifteen years. Polypi removed at intervals of from four to six months. Complete loss of smell five years. Both sides of the nose were filled with polypi and pus. Polypi were removed, and four days later the right middle turbinate was ablated, the ethmoid cells opened and curetted. As polypi protruded from the sphenoidal foramen, the anterior wall of the sphenoid was removed. The cavity was full of

granulations and pus. Packing was removed twenty-four hours later, with more polypi, and the right antrum opened, and much muco-pus washed out. A week later the deflected septum was operated upon by the submucous method. A fortnight after the left middle turbinal was removed, the ethmoid cells curetted, and the sphenoid opened. The right side was dry in six weeks. The left side was dry, save for a polypoid mass growing from the roof a little posterior to the naso-frontal duct. This was removed with a Grunwald punch, and the man developed septic meningitis in twenty-four hours, from which he died in four days. No autopsy.

Macleod Yearsley.

Dupuy, Homer.—*Laryngeal Tuberculosis, its Treatment, Diagnosis, and Prevention.* “New Orleans Med. and Surg. Journ.” June, 1907.

The author of this paper, which is based on 200 cases, insists upon the necessity of treating the patient, and not the larynx alone, emphasises importance of early diagnosis and routine laryngoscopy, and recommends open air, voice rest, formol, lactic acid, and the galvano-cautery.

Macleod Yearsley.

Tobey, G. L., jun.—*Essential Points in the Technique of Submucous Resection of the Nasal Septum.* “Boston Med. and Surg. Journ.” May 30, 1907.

The author considers anaesthesia, position, incision, and the best way of removing the cartilage and the incisive crest. The author thinks a horizontal incision along the base of the septum is seldom required. Extension across the nasal floor gives more room. For the incisive crest he prefers Jansen's forceps and a chisel. On account of the reactionary engorgement following the use of cocaine and adrenalin, light packing is advised.

Macleod Yearsley.

Powers, G. H.—*Technique of Submucous Resection of Nasal Septum.* “Boston Med. and Surg. Journ.” May 30, 1907.

This paper gives the technique of the operation as performed in the Massachusetts General Hospital Throat Clinic. Anaesthesia is obtained by rubbing the mucosa with pledgets of cotton dipped in equal parts of adrenalin (1-1000) and cocaine (4 per cent. to 10 per cent.). The single anterior incision is used, occasionally modified to meet special requirements by the addition of a horizontal cut along the base of the septum or by extending the incision across the nasal floor. The author prefers Ballenger's knife when possible. Sutures are used and the nose packed. Packing is removed after twenty-four hours and aristol insufflated for two days, sutures being left for from three to five days.

Macleod Yearsley.

Heimendinger, A. (Strassburg).—*Contributions to the Pathological Anatomy of the Maxillary Antrum.* “Archiv für Laryngol.” vol. xix, Part III.

The first of the two cases which form the material for this paper was one of cholesteatoma of the maxillary antrum. The patient, a

woman, aged thirty, suffered from atrophic rhinitis and empyema of the right antrum, which was opened through the inferior meatus. Three months later the purulent nasal discharge still continued, and at a second operation abundant cholesteatomatous masses were removed. These masses were arranged in lamellæ, the latter being made up of large polyhedral epidermoid cells.

Hegetschweiler has reported two other instances of this disease affecting the maxillary antrum, and in a case put on record by Weinlechner, cholesteatoma of the frontal sinus followed upon suppurative disease of that cavity of traumatic origin. No other cases in which the disease involved an accessory cavity of the nose have been recorded.

The writer gives some account of the views which have been put forward as to the pathology of cholesteatoma in general, and particularly as met with in the temporal bone. While it is certain that the condition may arise as a primary new formation, in most cases it is secondary to chronic suppuration. No instance of the primary form affecting a nasal accessory sinus has been recorded. The writer considers the association with ozæna in his case as very important. In ozæna the metaplasia of the cylindrical to squamous epithelium is one of the most prominent features, and it is suggested that in the case here described invasion of the antrum by the squamous epithelium may have taken place. The antrum, being already the seat of chronic suppuration, would then offer favourable conditions for the active proliferation of the squamous cells and the formation of a cholesteatoma.

The second case described in this paper was one of cholesterin cyst of the antrum. The patient was a woman, aged thirty-four. From both nostrils polypi had been removed four years previously. As circumstances pointed to disease of the left antrum an exploratory puncture was performed, and a syringeful of clear serous fluid containing numerous cholesterin crystals was drawn off. Later, the antrum was opened through the canine fossa, and a cyst about the size of a walnut, together with some polypoid masses, removed from its interior.

Microscopical examination showed that the cyst had originated in a polypus, by a process of central softening. While the tissue immediately subjacent to the investing layer of ciliated epithelium displayed the features characteristic of an ordinary polypus, the layers internal to this were undergoing necrosis. Both in this necrotic portion of the cyst wall, and on the boundary line between it and the still unaltered outer layer, a number of long, narrow spaces, with sharply-cut edges and pointed ends, were visible. In close association with these spaces were numerous large giant-cells, many of them packed with nuclei, but others, containing only a few, at either end, or around the periphery. The spaces had evidently been occupied by cholesterin crystals, almost all of which had been removed during the treatment of the preparation with ether and alcohol. These crystals had acted as foreign bodies and were responsible for the presence of the giant-cells. The latter were of the nature of the so-called "foreign-body giant-cells," which have been described in a number of different conditions. Some of these appear to arise by confluence of neighbouring cells, others by the growth of a single cell.

Thomas Guthrie.

Jouty, Antoine.—*A Case of Suppurative Thrombo-phlebitis of the Lateral Sinus and Bulb of the Jugular, a Sequel to Chronic Purulent Otitis, Pyæmia, Pulmonary and Articular Metastases; Radical Operation, Opening of the Lateral Sinus, and Drainage of the Bulb; Cure. "Annales des Maladies de l'Oreille, du Larynx, du Nez, et du Pharynx," March, 1907.*

Mention is made that the majority of surgeons hold it to be correct practice to ligate the internal jugular in its upper third above the thyro-lingual-facial vein, as a preliminary to clearing out and draining an infected sinus and bulb. The views of Moure and Brieger are quoted; the former considers ligature in such cases useless, and the latter never practises it.

The following case of suppurative thrombo-phlebitis of the sinus and bulb operated by the writer and cured without ligature is then detailed:

A lad, aged fourteen, had suffered from bilateral intermittent otorrhœa for twelve years, dating from an attack of measles. On June 29, when he first saw the author, he had had a copious discharge from the left ear for four days, with auricular pain and headache of the same side; he also complained of vertigo and sleepiness. The temperature was high, with marked oscillations. Examination of the ear revealed a perforation of the drumhead, partially obstructed by granulations. There was pain on pressure over the mastoid process, and palpation along the course of the internal jugular elicited tenderness. A radical mastoid was performed; the wall of the sigmoid sinus, which was found to be involved by osteitis, was removed with the gouge, exposing that vessel in its whole extent. The sinus was then freely opened, and purulent clots which occupied its lumen were removed with a curette; no haemorrhage followed from either end; as it was possible the thrombus had extended to the bulb, the latter was exposed with a rongeur. After introducing a piece of gauze into the bulb by means of fine forceps, it was found on withdrawal saturated with pus; there was no trace of blood. Insertion of a gauze drain into the bulb and sinus completed the operation. The pyæmic temperature continued; the dressings were changed every two days, and on each occasion endeavours were made to remove clots from the proximal and distal ends of the sinus; during the third dressing free haemorrhage occurred from the former. The pyæmia ran its usual course. The day following the operation there was a painless suppurative arthritis of the metatarso-phalangeal joint of the great toe, and some days subsequently a well-marked patch of congestion was noted in the lower lobe of the right lung; the former was opened, and the latter was treated by revulsives in the form of turpentine stapes, frictions of iodine and collargol, whilst the general treatment consisted in the abundant administration of diluents and alcohol; injections of serum were also made. Convalescence commenced one month after the operation, and two months later the operated cavity had completely epidermised.

In his final remarks the author draws attention to the altered pulse-temperature ratio observed in this case. When the temperature ranged at 40° and 40.6° C. the pulse did not exceed 76, and with temperatures of 36° and 36.5° C. it was 48 and 50. He attributes this condition of things to an irritative lesion of the vagus, the result of its contiguity to the infected sinus in the foramen lacerum posterius, thereby accentuating the normal cardio-inhibitory function of that nerve.

H. Clayton Fox.

EAR.

Zebrowski, A. (Warsaw).—*On the Curability and Operative Treatment of Pyæmia of Aural Origin.* “Monats. fur. Ohrenheilkunde,” January, 1907.

The writer gives a full account of six cases of pyæmia originating in suppurative otitis media, and reviews the literature on the subject. Four of the cases described made a good recovery after the sinus had been freely exposed and the focus of the disease removed. Of the fatal cases one died of heart failure on the second day after operation and the other in the second week, with symptoms of thrombosis of the cavernous sinus. The author comes to the following conclusions:

(1) There is no typical course of the disease; it may be of any grade of severity. The methods of operating must be modified according to the severity of the disease and the pathological anatomy of the changes found after opening the temporal bone and exposing the sinus.

(2) The complete removal of the focus of disease in the bone and the exposure of the sinus transversus is frequently sufficient to cut short the pyæmic process.

(3) Anti-streptococcus serum may be used with favourable results in the post-operative treatment.

(4) Absence of pain in the mastoid process is no contra-indication for operative interference in cases of middle-ear suppuration.

(5) The onset of symptoms of thrombosis of the cavernous sinus must be taken as a sign of imminent death. No attempt at opening the cavernous sinus is admissible.

Knowles Renshaw.

Koellreutter, von W.—*The Rôle of the Auditory Conductive Apparatus in the Deafness of the New-born Child.* “Zeitsch. f. Ohrenh.,” vol. liii, Part II, 1907.

The writer records his investigations on the hearing-power of the new-born child. His findings were with:

(1) The cri-cri (a small plate of metal with a buckled centre, which, on the plate being bent, springs to the opposite side, thus giving rise to the noise used in the tests) gave, even a few hours after birth, a marked reaction, quick movements of the eyelids and eyebrows.

(2) Galton's whistle, c⁶, a marked reaction (a) in all children in the first twenty-four hours of life; (β) in 74 per cent. of the children aged two to fourteen days.

(3) The tuning-forks, C, c², c³, provoked no reaction in any case.

It is thus shown that during the first days of life high tones are perceived, but middle and low are not. A remarkable fact is that although all the children in the first twenty-four hours reacted to the high tones, yet on being tested again a few days later some failed to do so.

The writer points out that, in the light of the above results, there can be no longer any doubt as to the auditory perceptive apparatus being functional at birth, the inability to react to the lower tones indicating some block in the conducting apparatus—i. e. foetal waters, myxomatous tissue of Virchow, which are found in the middle ear.

Lindley Sewell.

Freytag, R.—*A Case of Labyrinthine Diplacusis due to Syphilis.*
“Zeitsch. f. Ohrenh.” vol. liii, Part II, 1907.

The writer briefly reviews the literature on diplacusis, pointing out that the condition was at first regarded as being secondary to pathological changes in the middle ear. Later observers considered that changes in the labyrinth were responsible, although the author states he has only been able to find four recorded cases of diplacusis in which middle-ear disease could be excluded, his own case being the fifth.

Male, aged twenty-one, six months after contracting syphilis, was seized with attacks of giddiness, which in three days' time so increased in frequency and severity as to confine him to bed. Accompanying this giddiness were severe pains in the head, general weakness, and high-pitched ringing in the left ear. The patient was now admitted to hospital, and examination showed—nystagmus on looking to the left, marked Romberg's sign, staggering gait, and tendency to fall to the right; tympanic membranes, Eustachian tubes, and nasal passages normal. Hearing tests: Whispering, upper and lower tone limits, normal; Weber not lateralised, c tuning-fork heard somewhat longer through bone than air both sides. The series of forks was heard longer on the left side than right, and the patient, who was very musical, stated that from a¹ to a³ the fork heard on the left seemed one fourth tone higher than on the right. Anti-syphilitic treatment was instituted, with the result that the giddiness, head-pains, and tinnitus gradually subsided, and the patient left hospital in five weeks, the tone difference with forks h₁-a³ having quite gone, there still remaining, however, a small difference with d¹-a¹. Seen two years later the patient was quite free from giddiness, except on sudden turning, the tinnitus was slight, and the diplacusis had disappeared. During this time the patient had had two courses of mercurial injections.

The writer states that there can be no doubt as to the aetiological factor being syphilitic in this case, as one can exclude the possible toxic action of the anti-syphilitic treatment which the patient had undergone before coming under observation, from its being so long—three months before the onset of aural symptoms.

Lindley Sewell.

REVIEWS.

The Labyrinth of Animals, including Mammals, Birds, Reptiles, and Amphibians. By ALBERT A. GRAY, M.D.Glas., F.R.S.E. Vol. I. London: J. and A. Churchill, 7, Great Marlborough Street, 1907.

In reporting the “Proceedings” of the Otological Society of the United Kingdom it has been our good fortune from time to time to give our readers glimpses of a very important research into the labyrinth of animals upon which Dr. Albert A. Gray has been engaged. The work of investigation was commenced seven years ago. A considerable portion of that time had to be devoted to the discovery of a satisfactory method of making the anatomical preparations, and to the gradual improvement of the method, of which the author gives a full account. The research is now sufficiently advanced to permit of the publication of the first volume, which includes the primates, the cheiroptera, the carnivora, the ungulata, the edentata, and the majority of the rodentia. The second

volume will include the remaining examples of the rodents, the insectivora, the cetacea, the sirenia, the marsupalia, and the monotremata, as well as the birds, reptiles, and amphibia. The author modestly states that the work is designed to give a general and fairly comprehensive presentation of the anatomy of the labyrinth of vertebrates with the exception of fishes. The labyrinth of the latter having been described so completely by previous anatomists is omitted. Moreover, the method of preparation employed is only applicable to those animals in which the labyrinth is surrounded by bone, and fishes are not among these.

It is not necessary to point out that work of this kind is of inestimable value to the student of comparative anatomy and to the physiologist. To the aurist the book makes a double appeal. The method of preparation described puts into his hands another means of investigating the pathological changes which are productive of such symptoms as deafness, giddiness, and tinnitus. In the "Transactions of the Otological Society of the United Kingdom," vol. vi, 1905, Dr. Gray has shown how the method may be applied to this line of research. Secondly, the knowledge of the anatomical variations found in the different species of animals may be of use to the aurist in devising means for the relief of those who suffer from deafness and the symptoms just mentioned. When one remembers the difficulty in even collecting the material for an investigation of this kind, and, further, the time and the patience required for obtaining the really remarkable specimens which form the series of beautiful plates with which the book is illustrated, it is most difficult to praise sufficiently the work or to express the gratitude that is due to Dr. Gray. It is certainly not too much to hope that others will follow up this line of research, and, possibly, with the increased knowledge of the pathological conditions which it will bring, a much needed change in the treatment of some forms of deafness may result.

L'Otite Moyenne Purulente Aiguë et son Traitment. By Dr. G. LAURENS. Illustrated. Paris: J. B. Bailliére et Fils, 1906.

The book is intended to serve as a guide to the general practitioner in the recognition and treatment of acute otitis media. Considerable space is devoted to the surgical anatomy of the middle ear and its adnexa, and an excellent and explicit account of the technique of examination is given.

The author makes a strong plea for the rational treatment of this common disease, claiming that a collection of pus in the middle ear should receive the same treatment as pus pent up in any other situation, viz. early evacuation by means of incision. The operation of and indications for paracentesis are given in detail, the writer recommending incision from below upwards in the posterior inferior segment. In view of the recent experiments of Young and Milligan it is interesting to note that Politzerisation after incision of the membrane is strongly condemned.

Many otologists will not agree with Dr. Laurens in his rejection of the gauze drain in the meatus, and an analogy which he makes between the auditory meatus and the accessory sinuses of the nose will hardly hold, there is surely much difference in the action and effect of a loose gauze drain and of a tightly-packed tampon.

The aural surgeon will find little that is new or original in the book, but as a clear exposition of the disease in question, of its diagnosis and treatment, it can be strongly recommended to the practitioner.

Diseases of the Nose and its Accessory Sinuses. By H. LAMBERT LACK, M.D., F.R.C.S. Longmans Green & Co., 39, Paternoster Row, London. New York and Bombay. 1906.

Owing to the rapid strides that have been made within recent years in the development of our triple science it has long ceased to be possible to deal at all fully with its three branches in one volume; in fact, it is daily becoming more difficult to do justice to even two branches of the subject within limited space. Dr. Lack has done well in confining his present work to the diseases of the nose and its accessory sinuses. The work is based upon an essay on "The Pathology, Diagnosis, and Treatment of the Inflammatory Affection of the Nose and its Accessory Sinuses and Air Cells," which was awarded the Jacksonian prize in 1899. Since then some of the investigations for that work have been continued and amplified, the whole essay has been thoroughly revised, and additional chapters have been added, with the result that the present book forms a complete treatise on the diseases of the nose. The work consists of some twenty-four chapters and an appendix of useful formulæ for local application. The earlier chapters deal very fully with the anatomy of the nose and general considerations of the symptoms of nasal disease and its treatment. Then follow some chapters on acute and chronic inflammation, ozaena, polypus, chronic infective diseases, tumours, and neuroses of the nose. Chapters XV to XXIII inclusive are devoted to the accessory nasal cavities. These chapters undoubtedly form a very important part of the book. The usefulness of the work has been materially increased by the addition, at the end of each chapter, of a short bibliography, containing references to the more important and recent contributions to the subject with which the particular chapter deals. Dr. Lambert Lack is to be congratulated on having presented the subject in such a lucid and practical manner.

A Guide to Diseases of the Nose and Throat and their Treatment. By CHARLES A. PARKER, F.R.C.S.Edin. London: Edward Arnold, 1906.

The author of this work states in the preface that the book is founded on lectures given at the Throat Hospital, Golden Square, and he hopes it may help those attending, or who have attended, a short course of study at special departments or special hospitals for diseases of the throat and nose.

The first section of the work deals with the methods of examination, local and operative treatment, while in the second the complications of the upper respiratory tract, in relation to general medicine, are considered. Four sections follow, and these are devoted to diseases of the nose, naso-pharynx, oro-pharynx, and larynx.

Any author attempting to write a text-book upon diseases of the nose and throat in the present day has first to determine to what extent he is

able to undertake all that is required within the limits of the work he is to produce. For example, it is exceedingly difficult to separate the affections of the oro-pharynx from those of the middle ear, and, again, it is very hard to know where to draw the line between diseases of the larynx and the trachea. It is also very difficult in any work of this kind to exclude the cesophagus. This work does not take up any of these three last-named regions. After all, it is a question of neither doing too much nor too little, and considering the objects above stated we think Dr. Parker has been very fortunate in the scope and plan of the present work. Any student of this special department of surgery will see that Dr. Parker is conversant with the recent methods of treatment, and has wisely endeavoured to discuss the etiology in a work of this kind from the point of view of prophylaxis, while the pathology is discussed in a very practical way as an aid to diagnosis.

The author is to be congratulated on the production of a work which has been well written, profusely illustrated, and which is bound to be of great service to any student or practitioner desirous of obtaining a really useful text-book.

Anæsthetics, their Uses and Administration. By DUDLEY WILMOT BUXTON, M.D., B.S. Fourth Edition. London: H. K. Lewis, 136, Gower Street, W.C. 1907.

With the growth of surgery, and more particularly of special surgery, there has been, as a natural concomitant, a corresponding development in the art of inducing anæsthesia, with the result that new editions of the leading text-books on the subject are called for. Dr. Buxton, in the present edition of his well-known practical manual, has included fresh articles dealing with dosimetry in chloroform, the use of ethyl chloride as a general anæsthetic, and the production of anæsthesia by spinal injection. The whole of the book has been revised and largely re-written, so as to include some account of recent scientific research upon anæsthetics. At the same time the original character of the volume as a practical manual is retained, and the author has succeeded in the very difficult task of epitomising into a handy volume so large a subject as the study of anæsthetics has become.

Traité des Maladies de la Voix Chantée. Par le Dr. ANTOINE PERRETIÈRE, ancien interne des Hôpitaux de Lyon. 1 vol. in 8° de 300 pages, Paris: A. Poinat, 12, rue Jacob. 8 fr.

“Maladies de la Voix Chantée” is the title of an interesting treatise by Dr. Perretière. The treatise is based upon some years of practical experience and literary research.

After a few general and formal considerations there follows a very logical classification of the causes of vocal maladies. Special prominence is given to the important part played by general ailments and disturbances of health in the etiology of phonopathy, so that the treatise appeals to those engaged in the practice of general medicine as well as to laryngologists. The technical aspect of the art of singing as a factor also receives special attention. Conditions affecting the singing voice are

divided into two groups, comprising simple voice fatigue and organic disease; the author classifies the latter according as they affect the lungs, the larynx, or the resonance cavities. The chapter on semeiology takes the form of a general review of voice affections attendant on various diseases of the vocal system. A special chapter is devoted to the hygiene of the voice, and a detailed bibliography completes a very practical treatise.

Practical Medicine Series: Eye, Ear, Nose and Throat Section, vol. iii, 1907. The Year Book Publishers, Chicago. G. Gillies & Co., 28, Gibson Street, Hillhead, Glasgow.

The Practical Medicine Series of Year Books for 1907 consists of ten volumes containing much that is of interest to practitioners who wish to keep in touch with advances in medicine and surgery.

In this country we are familiar with medical annuals, and it is interesting to see the works published on the other side of the Atlantic. The publishers of this series arrange to sell the works separately, if required, and the names of those in charge of each department are sufficient guarantee of their capacity to undertake the work. The publishers claim that for five years it has been their sole endeavour to develop a series of books that would present the year's medical progress in the most serviceable and attractive form to meet perfectly the needs of the active physician, and the volume dealing with eye, ear, nose and throat which has been sent to us for review, fully justifies the claims made for it. The work done in 1906 is very well reviewed and abstracted, and the general practitioner can easily make himself acquainted with the most important developments by a study of the different sections. There can be no doubt the editors, Drs. Casey A. Wood, Albert H. Andrews, and Gustavus P. Head, have done their work well, and the volume should be well received by the profession.

BOOKS RECEIVED.

D. W. Buxton, M.D., B.S. *Anæsthetics, their Use and Administration.* Fourth edition. London: H. K. Lewis, 136, Gower Street, W.C. 1907.

Albert A. Gray, M.D., F.R.S.E. *The Labyrinth of Animals, including Mammals, Birds, Reptiles, and Amphibians.* Vol. I. London: J. and A. Churchill, 7, Great Marlborough Street. 1907.

G. Laurens, M.D. *L'Otite Moyenne Purulente Aiguë et son Traitment.* Illustrated. Paris: J. B. Baillière et Fils. 1906.

Wesley Mills, M.A., M.D., F.R.S.C. *Voice Production in Singing and Speaking based on Scientific Principles.* London: J. Curwen and Sons, Limited, 24, Berners Street, W. 1906.

Antoine Perretière, M.D. *Traité des Maladies de la Voix Chantée.* Paris: A. Poinat, 12, Rue Jacob. 1907.

Practical Medicine Series: Eye, Ear, Nose, and Throat Section. Vol. III. The Year Book Publishers, Chicago. G. Gillies and Co., 28, Gibson Street, Hillhead, Glasgow. 1907.

THE

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

THE BRITISH MEDICAL ASSOCIATION MEETING AT EXETER.

PROSPECTS OF THE SECTION OF LARYNGOLOGY AND OTOTOLOGY.

MANY who were deterred from taking part in the work of the Section at the Toronto meeting last year will, as the result of a year's deprivation, avail themselves with more than ordinary readiness of the meeting at Exeter, which will, however, have run half its course before the end of the present month. Moreover, the attractions of the famous cathedral town, and those of "glorious" Devon in general, will help still further to ensure a good muster. It is obvious that, not only in number, but in quality, the Section in which we are interested is sure to be a successful one. Dr. Mackenzie Johnson is not merely a technical expert and a genial and cultured man, but he is a man of business, accustomed to the ways of meetings. This qualification is of no slight importance, as we may count on that smooth, orderly, and expeditious despatch of business, for the want of which such meetings have occasionally been a source of disappointment. The vice-presidents have also been well chosen, and no more popular and respected otologist could have been selected as secretary than Mr. Whitehead, of Leeds, his local colleague, Mr. Charles Edward Bean, having, no doubt, the confidence of his friends in the south-west at present, and of all of us in the immediate future.

The programme condensed into the too short time of three days is of the utmost practical interest, as both the choice of subjects

for special discussion and the names of the participators in the work will amply prove.

No more practical subject in laryngology could have been selected than the "Differential Diagnosis of Tuberculous, Syphilitic and Malignant Disease of the Larynx," and it could not have been placed in better hands than those of Sir Felix Semon and Dr. Jobson Horne, the former bringing to bear on the subject the result of a long and responsible clinical experience, while Dr. Jobson Horne has identified himself more particularly with the pathological aspect of the question, carefully checked by a close analytical study of a large series of cases. His paper in our last issue is an evidence of this.

The scope of Sir Felix Semon's paper is indicated by the epitome of it which we quote from the *British Medical Journal* (Supplement) for July 6. He purposely omits from consideration the "typical" cases, in which the diagnosis is relatively easy, and confines himself to those in which either the appearances are so deceptive as to induce even an experienced observer to arrive at an erroneous conclusion, or in which the signs are so ambiguous as to make the expert pause before committing himself to a definite opinion, or finally in which no clue is offered by the local or the general phenomena as to the true nature of the case. We may count on an uncompromising dissection of his clinical material formulated in the author's out-spoken style and affording much scope for reflection. He classifies his headings as follows:

(1) Congestion of the vocal cords as an initial sign of tuberculosis, syphilis, and malignant disease—(a) bilateral, (b) unilateral.

(2) The difficulties of diagnosis between tuberculous, syphilitic, and malignant laryngeal tumours.

(3) Laryngeal tuberculosis in middle-aged or old people as a source of error in the differential diagnosis between tuberculosis, malignant disease, and syphilis of the larynx.

(4) Difficulties of differential diagnosis between all the three diseases when appearing in the form of infiltration.

(5) Combination of two of the diseases under consideration, and consequent diagnostic difficulties.

Under each of these headings the signs are enumerated which may be useful in arriving at a correct diagnosis, and the difficulties encountered are illustrated by examples furnished by the author's own experience.

The epitome of Dr. Jobson Horne's paper sketches some lines of study which promise to be of the greatest interest. He considers

tuberculosis to be the disease of the three which is the most commonly overlooked, and indicates a process of eliminating it as an important step towards the diagnosis of malignant disease. While agreeing with Dr. Horne that tuberculosis is very frequently overlooked, we cannot help thinking that those of us who from circumstances are led to see large numbers of cases of laryngeal tuberculosis are apt to jump rather too readily at its diagnosis, as there is scarcely any form of infiltration and ulceration of the larynx which tuberculosis may not imitate. Those who see little are too often led to overlook it with disastrous results. In regard to syphilis, whilst describing certain characteristic features, he proposes to view it more from the point of view of being a possible factor, both concomitant and causal, common to tuberculosis and malignant disease.

Transillumination of the larynx is to be discussed as an aid in ascertaining the nature and the extent of the disease, and the value and fallacies of the opsonic index are to be touched on. The significance to be attached to the pathological histology of portions removed for microscopical examination is to be considered in detail, and probably this will be among the most important part of the study. The technique of the removal of fragments is to receive the great consideration it deserves, as few experienced observers can have failed to have seen instances of error in the diagnosis of malignancy by this means, both from "positive" and "negative" results, especially the latter. Dr. Shattock's remarks on this subject at a recent meeting of the Medical Society may be familiar to our readers. If Dr. Horne succeeds in showing how these errors can be considerably reduced in frequency, not to mention their entire elimination, he will deserve well of his fellow specialists.

Chronic suppuration of the middle ear figures again, but in a very definite and somewhat neglected aspect, namely, its treatment without resort to the radical (complete) mastoid operation. One would suppose that there has hitherto been a tendency to rivalry among aural surgeons as to which can produce the biggest numerical series of cases of the radical operation. Professor Lucae expressed the view at the International Otological Congress that the rivalry should take the form of striving to show how large a percentage of cases of chronic suppurative otitis we can succeed in curing without the radical operation. He operated in about 9 per cent., and probably that is a fair average. It would be disastrous if the struggle against operation were overdone, as lives would certainly be lost,

but unnecessary operations are to be deprecated, and it is to be hoped that the scope and limits of conservative treatment will be defined by this discussion as far as it is possible in the nature of things for this to be done. Dr. Milligan, of Manchester, will, in his opening remarks, deal with the definition of chronicity, which, in view of the very early period at which some operators undertake the operation as adapted for chronic cases, is evidently very loose. He will also classify the types of chronic suppuration, no doubt on the probable pathology as arrived at by a more careful analysis of the clinical signs than many operators appear to make. It is in this respect that the "rule of thumb" operators appear to us to err most seriously, rushing into radical proceedings in those "types" in which a more conservative plan of treatment would be appropriate. We may hope to have light shown on some points on which opinions seem to differ very widely, as, for instance, the relative frequency with which suppuration in the attic is confined to Prussak's space without involvement of the antrum and mastoid cells. Thus Professor Politzer, in reference to the indication for ossiculectomy,¹ states: "That in the overwhelming majority of cases the suppuration is localised in the outer attic," whereas Mr. Charles Heath expresses the opinion that affection of the attic cannot be differentiated from that in the tympanum, and both are dependent on mastoid disease.²

Methods of treatment, such as drainage, inflation, and aspiration are to be reviewed, and their limitations will no doubt be very obvious, especially when the classification of cases from the point of view of danger to life is made. We presume that under the headings of the "Wet and Dry Methods of Treatment" the various antiseptic, astringent, caustic, and alcoholic remedies and the minute technical manipulations, which makes them so valuable in the hands of a master of his art, will be referred to. The intra-meatal operative procedures also merit particular attention, as aurists who have practised previously to the popularisation of the radical mastoid operation will remember many cases which yielded to the persevering and, we may say, scientific exercise of intra-meatal technique. This includes localised cauterisation and curetting, intra-tympanic snaring, and the delicate intra-meatal manipulation which is apt to be eclipsed by the panaceal "radical" operation, and which seems in imminent danger of becoming a lost

¹ "Text-Book of Diseases of the Ear." English translation, foreign edition (p. 493).

² *British Medical Journal*, July 13, 1907, p. 81.

art. We trust, for the credit of our speciality, that it may be saved from this fate, much as we value the resources placed at our disposal by Schwartze, Küster, Stacke, and their followers.

Dr. William Hill co-operates with Dr. Milligan in introducing the discussion, and in his epitome he very significantly indicates the intention of comparing the results of the various mastoid operations with those of meatal ossiculectomy and external atticotomy. If we may judge by a letter contributed by him recently to the *British Medical Journal*, any excess of zeal displayed in resorting to mastoid operation will be submitted to the most thorough criticism. He is a keen supporter of the claims of Küster as founder of the modern radical mastoid operation. This was, however, only one instance of the application of Küster's great principles with regard to the healing of cavities bounded by rigid walls.

Among other papers is one by Professor Onodi, of Buda-Pesth, on the "Etiology of the Severe Complications of Empyema of the Accessory Nasal Cavities." This will no doubt include reference to his observations on contra-lateral disturbance of vision due to disease of the accessory nasal cavities detailed in the original paper from his pen, which we have the privilege of publishing in our present issue. Doubtless his utterances in the Section will throw light upon some of the more obscure passages. Our readers will probably be tempted to visit the Section of Ophthalmology to hear a paper by Dr. Henry Manning Fish, of Chicago, on a "Study of Thirty-six successive Cases of Optic Neuritis, in Twenty-six of which Nasal Accessory Sinus Disease was present." In fifteen treatment of the sinus was followed by improvement in the ocular condition, three of them being bilateral and with subsequent restoration of normal vision. We have been favoured with a tabular statement of these cases, with the addition of those gathered from the literature of the subject, and shall have much pleasure in placing this instructive document before our readers in a subsequent issue.

Mr. Macleod Yearsley will deal with pneumo-massage in affections of the middle ear, and many will desire to have some definite evidence as to its actual value, as it is a mode of treatment which seems to have suffered alike at the hands of its detractors and of its over-laudators.

Mr. George Jackson, of Plymouth, Vice-President of the Section, has not contributed so often to the programmes of these meetings as many would wish, although he has been a regular attendant,

and has taken a valuable share in the discussion. He promises a paper on the "Relative Frequency of Caries of the Superior and Middle Turbinals and Ethmoid Bones, and the Importance of Examining the Nose in all Cases with Symptoms of Deafness, Giddiness, and Vertigo, and Throat Affections, with some Remarks on the Treatment thereof." This subject reminds us of the researches of Dr. Edward Woakes, which were published at a period when the rhinological mind, in this country at least, was in an unnecessarily sceptical state, and at the same time scarcely developed to such a degree as to enable it to afford them the benefit of calm, critical consideration. Mr. Jackson's paper will at the present day be looked forward to with considerable interest.

The programme will be further enriched by contributions from the pens of Dr. Robert Fullerton on "A Teratoma of the Tonsil," Mr. Chichele Nourse on "Frontal Sinusitis," to which he has for some years devoted considerable attention, and Mr. Stuart Low on "Submucous Turbectomy," a refinement in technique which will be new to many.

The dangerous sequelæ of suppuration of the middle ear will be illustrated by Dr. Syme's remarks on "A Case of Acute Suppuration of the Middle Ear, complicated by Septic Meningitis and Brain Abscess," and by Dr. Bronner's notes on "A Case of Thrombosis of the Lateral Sinus, with Complete Obliteration of the Jugular Vein"—rather a disconcerting condition for any junior operator who seeks for the vein and finds in its place a cord of about the same thickness as the vagus nerve. Mr. Hugh Jones confines himself to a description of slight deviations from the normal in the form of the auricle in relation to degeneracy and deafness, a subject which has been insufficiently studied in this country, although it has appealed very strongly to the natives of the land of Lombroso and particularly to our respected Italian *confrère*, Professor Gradenigo. Dr. E. S. Yonge will combine speculative pathology and practical deductions therefrom in his observations on the determining cause in the formation of nasal polypi, which has formed the subject of a volume from his pen which we had recently the pleasure of commending. Among interesting exhibits will be lantern demonstrations by Dr. Watson Williams on "Some points in the Anatomy and Surgical Treatment of the Nasal Accessory Sinuses," of which it may be truly said we cannot know too much, and by Dr. Milligan on the surgical treatment of labyrinthine suppuration—one of the most important and responsible additions to our art. The accessory sinuses will be illustrated by diagrams by Professor Onodi, who

will also show a phantom of the larynx and an instrument for opening the antrum of Highmore. Mr. T. Guthrie, whom we have had much pleasure in adding recently to the number of the collaborators on the staff of the Journ. of LARYNGOL., RHINOL., AND OTOL., will show diagrams illustrating the development of the middle ear. The following have signified their intention of taking part in the discussion: Dr. Kerr Love, Dr. Stanley Green, Mr. Macleod Yearsley, Dr. Smurthwaite, Mr. Hunter Tod, Mr. Lake, Dr. Fullerton, Mr. F. Spicer, Mr. Mark Hovell, Dr. Chevalier Jackson, Mr. Chichele Nourse, Mr. Stuart Low, Dr. Syme, Dr. Pegler, Mr. Heath, Mr. Guthrie, Dr. Tilley, Mr. Hugh Jones, Dr. A. Bronner, Mr. J. Bark, Dr. Stoddart Barr, Dr. Mérel, Dr. Dundas Grant, Dr. Cresswell Baber, Dr. Willinger, Dr. Birkett.

Among the most welcome visitors will be Dr. Chevalier Jackson, of Pittsburgh, U.S.A., and our old and valued friend Dr. Birkett, of Montreal. None of the elements conducive to success are wanting, and we feel sure that those who attend will be amply repaid.

TRUE TUBERCULAR TUMOURS OF THE LARYNX AND TRACHEA.

WE have received a communication from our old and esteemed contributor, Dr. J. Nowland Mackenzie, on the above subject, expressing a desire that our readers should have before them some of the arguments on which he founds his claim to have been the first to report cases of true tubercular tumour of the larynx and trachea. Dr. Mackenzie claims that since the publication of his original paper several unsuccessful attempts have been made to deprive him of the credit due to the discovery of this form of tuberculosis in the upper air-tract. In the *British Medical Journal* of June 7, 1884; the *Centralblatt für Laryngologie*, etc., March 3, 1885, No. 9; the *Wiener med. Presse*, 1885, Bd. 26, pp. 473 and 976 (further reference may be made to an article by Percy Kidd in *St. Bartholomew's Hospital Reports* for 1885, vol. xxi), Dr. Mackenzie has placed his views before the profession as far as Professor Schnitzler's claims are concerned. Professor Ariza's alleged priority was dealt with in a review in the *Centralblatt für Laryngologie* for April, 1886. Dr. Mackenzie holds that from the illustrations and the accompanying text the first case was clearly a malignant growth, probably a sarcoma, and the second patient had suffered from pedunculated fibrous polyp. Unfortunately no *post-mortem* was obtained. Dr. Mackenzie's excellent work deserves the fullest recognition.

on our part, and we have much pleasure in quoting the following portion of his letter to us :

" As some misapprehension on the above subject still exists in certain quarters, and as my attention has recently again been repeatedly called to this fact, I trust you will permit me, in the interests of historical accuracy and justice, to refer through the medium of your esteemed Journal as briefly as possible to the facts in the case.

" The first recorded cases of true tubercular tumour of the larynx and trachea were reported by me in the summer of 1882, in a paper read before the Clinical Society of Maryland. A full abstract of the article appeared in the current number of the *Maryland Medical Journal* (June 1, 1882), and the paper itself was subsequently published in full the following October in the *New York Archives of Medicine*¹—a publication which, together with its brilliant editor, Seguin, has since passed out of existence.

" In this communication I pointed out the fact, which has since been too often overlooked, that the windpipe of the consumptive is the seat of various forms of outgrowths which may for the sake of accuracy and convenience be thrown into three distinct groups. Each of these groups, or forms, has certain anatomical peculiarities which justify us in placing them, clinically at least, in separate classes. In this way, too, may be ascribed the confusion which has existed on the subject from failure to discriminate clearly between the different forms of tumour found in the windpipe of the tubercular subject.

" The first group comprises the *granular hyperplasiae* which deck the base and fringe the edges of the tubercular ulcer. They are anatomically allied to granulation tissue, and are to be looked upon as the representation of a conservative process—as a natural step to cicatrisation—and are the result of a protective inflammatory process. They consist, histologically, of a mass of newly-formed connective-tissue cells and nuclei, in which enlarged tortuous capillary vessels are sometimes developed.

" In the second group are included the *papillomatous excrescences, vegetations, and tumours* which are of less common occurrence than the foregoing, and are closely allied both macro- and microscopically to simple laryngeal papillomata, for which they are easily mistaken. These are the growths that are often the *avant courier* of laryngeal and pulmonary tuberculosis, and may remain for a long time as the solitary outward and visible sign of that disease. Their presence in the interarytaenoid fold is often strong presumptive evidence of incipient consumption. They vary greatly in size, shape, and situation, sometimes projecting from under the anterior commissure of the larynx in the form and appearance of a spray of coral, at others filling the larynx with growths, macroscopically indistinguishable from simple papillomata, which are sometimes so abundant as to cause stenosis and call for tracheotomy. Their most characteristic seat is the posterior laryngeal wall, where they appear as warty, acuminate, or leaf-like outgrowths of pale greyish or pronounced reddish hue; or are banked at that situation in a solid mound either smooth in contour or bristling with multiple, acuminate projections. The histology of this class of tumour has been imperfectly studied, and may well bear in the future a more careful scrutiny.

¹ "Tubercular Tumours of the Windpipe—Tuberculosis of the Laryngeal Muscles. A Contribution to the Pathological Histology of Laryngo-Tracheal Phthisis," *Archives of Medicine*, October 1, 1882.

Stoerck,¹ following Rokitansky, regarded it as the result of an indurative proliferation of the connective tissue which occurs in the course of chronic tubercular disease of the mucous membrane in the neighbourhood of the arytenoid cartilages. Kundrat,² who examined Stoerck's specimen, pronounced them essentially papillomata and non-tubercular in origin. In my own limited observation reported in 1898 before the American Laryngological Association, and in Philadelphia in 1904 at the College of Physicians,³ we had to do here with a tuberculosis of a papilloma—to put it in a few words, papillomatous tissue infective with tubercular tissue. Whether or not the growth is tubercular originally or becomes so secondarily through infection is a point to be determined by future observation. This part of the subject is not only of histological, but also of eminently practical, importance. My specimens were especially interesting from a diagnostic point of view in the microscopical differentiation of this form of outgrowth from the papillary variety of epithelioma, particularly when, as sometimes happens, the tubercle bacillus is only found after a prolonged and diligent search. Whether benign or tubercular, the very fact that this variety of tumour often heralds the approach or proclaims the presence of tuberculosis in the individual, only emphasises the importance of examining with care, not only clinically, but microscopically, all papillomata taken from the larynx and trachea. With regard to their mode of development, it is quite possible that in some cases at least they may have an origin analogous to the papillomata found in the urethra and vagina, which are probably produced by infection of the vesical and uterine discharge.

"In the third group we have to do with what I have called the *true tubercular tumours*, which consist of solitary tumours of the wind-pipe, which are composed, histologically, of a mass of closely aggregated, miliary tubercular nodules, and which occur independently of infiltration and ulceration of the mucous membrane. My two first cases were of this kind, and are histologically interesting inasmuch as they are the first cases on record of tumours of any kind in the wind-pipe shown microscopically to be tubercular. They represent, therefore, the earliest exact knowledge of this form of tuberculosis, and are the first to establish the separate existence of this previously unknown phase of that disease. Since they were reported cases have here and there found their way into medical literature, some without doubt examples of true tubercular tumour, whilst others, and they are probably in the majority, are extremely doubtful in nature and must be thrown into the category of localised infiltration or into the papillomatous group. This latter group is familiar to every laryngologist of experience, while the student began to recognise the granular hyperplasias in the alphabet of his special studies. The true tubercular tumour, on the other hand, is extremely rare; and by true tubercular tumour I mean a distinct, definite, characteristic tumour-formation covered by unbroken epithelium, and consisting of a congeries of miliary tubercles set in a vascular network of connective tissue and exhibiting all grades of tubercular degeneration to cavity-formation.

"The origin of these growths is obscure. In my original communication I suggested that they might have a similar origin to the so-called 'metastases' in the laryngeal membrane, which take their departure from old tubercular disease of other organs, as the kidney and bronchial glands."

¹ *Klinik d. Krankheiten des Kelchkopfes*, etc., Stuttgart, 1880, S. 282.

² Cited by Stoerck, *loc. cit.*

³ Papers unpublished.

**THE ETIOLOGY OF THE CONTRA-LATERAL DISTURBANCES
OF VISION AND BLINDNESS OF NASAL ORIGIN.**

Being a paper read and a demonstration at the Thirty-eighth Congress of Ophthalmology, at Heidelberg, in 1906.

BY PROFESSOR DR. A. ONODI,
Buda Pesth.

(Specially translated for the JOURNAL OF LARYNGOLOGY.)

ANATOMICAL OBSERVATIONS.

In relation to the anatomical foundation of the contra-lateral disturbances of vision and blindness, having for its origin disease of the nasal cavities, the following ten observations of anatomical variations may be enumerated.

(1) The left posterior ethmoidal cell forms the medial wall of the right optic canal.

(2) The right posterior ethmoid cell forms the inferior and medial wall of the optic canal on both sides and the wall of the whole sulcus opticus.

(3) The right posterior ethmoidal cell forms the wall of the whole optic sulcus (*optic groove supporting optic commissure or chiasma*).

(4) The right posterior ethmoid cell forms the wall of the right third and of the middle third of the optic sulcus.

(5) The left sphenoidal cavity forms the inferior wall of the floor of the right optic canal.

(6) The left sphenoidal cell forms the lower wall of the right optic canal and the wall of the right third and middle third of the optic sulcus.

(7) The left sphenoidal cavity forms the inferior and mesial wall of the left optic canal and the inferior wall of the right one and the wall of the whole of the optic sulcus.

(8) The left sphenoidal cavity forms the posterior and middle of the optic canal on both sides and the wall of the whole sulcus opticus.

(9) The same relation of parts is present, with the difference that the right inferior and mesial wall of the optic canal is only formed in small part by the left sphenoidal cavity and, to a greater extent, by the right posterior ethmoidal cell.

(10) The right sphenoidal cavity forms the wall of the middle third of the optic sulcus; the posterior ethmoid cell and the sphenoidal cavity form the posterior and middle of the optic canal on both sides.

noidal cell on the one side may therefore be separated from the optic nerve of the opposite side and from the chiasma by a bony septum as thin as a sheet of paper.

CLINICAL MATERIAL.

As regards the clinical material at our disposal we may consider the separate cases more fully. In the case of WOHLMUTH there are traces of injury to the right frontal bone and the margin of the orbit, a contused wound of the back of the head, and blindness of the left eye. Berlin considers that the fracture of the right orbital roof extended to the left, and in this way involved the left optic canal, or was an indirect fracture due to the injury to the back of the head. In FREUDENTHAL's case the left eye became blind after a Killian operation on the right side, and six weeks afterwards atrophy of the optic nerve was apparent. Oppenheimer, the ophthalmologist, and May look upon this as the result of direct fracture following operation in the region of the left optic foramen, and Freudenthal accepts this view for lack of a better explanation. In reference to Wohlmuth and Freudenthal's cases there is the possibility of direct contra-lateral fracture in the region of the optic canal, the optic foramen, and the optic sulcus, which should not be left out of consideration. Indirect fracture of the optic canal on the same side as the injury has often been observed. Cases have come under our notice showing that the posterior ethmoid cells, as well as the sphenoidal, may be separated from the optic canal merely by a plate of bone as thin as a piece of paper. Höhler found in fifty-three cases fracture of the walls of the canalis opticus. Given an indirect fracture of the optic canal this, in view of the anatomical relations which we have mentioned, can only occur on the opposite side—that is, can only be contra-lateral. When we examine Freudenthal's case more closely we have two facts to consider: first, that up to the present, in spite of the enormous number of operations on the skull where hammer and chisel are freely used, no single case of the kind is so far known; secondly, the frontal sinus was opened in the first instance by Kuhnt's method, and the indirect contra-lateral fracture must therefore have occurred during the subsequent removal of the inferior wall of the sinus. In all operations hitherto performed by Killian's method where chisel and mallet must have been used more vigorously than in this case no traumatic lesion of the optic nerve neither on the same side or on the opposite side has ever

been observed. If we agree as to the possibility of an indirect contra-lateral fracture of the optic canal in view of our anatomical observations we are still unable to subscribe to these opinions, and we take this opportunity of asking the distinguished ophthalmologists whether they could describe this as an indirect contra-lateral fracture of the optic canal as a result of the Killian operation.

In the case published by HALSTEAD there was, along with empyema of the antrum, of the ethmoid and of the sphenoidal cells of the right side, blindness of the left eye with recovery of sight on the subsidence of the sinus disease. Halstead considered that empyema of the right sphenoidal cell had broken through to the left cell and thereby roused into action an old neuritis of the left eye. BROWN was in favour of adopting the view that exudation had occurred into the sheath of the left optic nerve, the left eye being normal six months after operation. In the discussion which followed HEPBURN expressed the opinion that the case was one of thrombosis of the central vein of the retina. The sudden blindness was more easily explained in that way. If the origin of the neuritis was attributable to pressure it would have developed slowly. SARGENT SNOW observed a similar case, with the difference that the blindness took one week to develop. Halstead's explanation rests only on a slight basis, as rhinoscopy revealed no evidence of penetration of the empyema of the right sphenoidal cavity into the left, and the ophthalmoscope afforded no confirmation of the idea of a previous old-standing neuritis. Then it must be remarked that there was an empyema of the ethmoid cells, and, therefore, the view of a causal connection with the ethmoidal empyema was just as likely. As a result of our morphological—*i.e.* anatomical investigations the explanation of the inflammation arising from the posterior ethmoidal cells was just as possibly correct as that which attributes it to the sphenoidal cells to the optic nerve of the opposite side, so also the circulatory disturbance, and in this way without the need of questionable hypothesis the contra-lateral disturbance of vision can be explained.

In the case of POLLATSCHER there was along with a left-sided empyema of the posterior ethmoid cells and of the sphenoidal cells a bilateral papillitis which disappeared after operation. He considers that there was one sphenoidal cavity with osseous dehiscence on both sides or only on one side, and that the periostitis present extended by continuity to the optic nerve of the other side. In his description of this case he says that on opening the posterior

ethmoidal cells he found a quantity of glutinous pus, but when the sphenoidal cells were opened very little pus was present, and the explanation of this seems to depend upon the hypothesis of one sphenoidal cavity having dehiscences on both sides or only on one side by which the periostitis extended to the optic nerves. Morphological observations afford the possibility of a causal connection making the condition due to disease of the posterior ethmoidal cells just as probable as to disturbance of the sphenoidal cells. But the question remains to be considered as to whether this unilateral acute empyema and the bilateral papillitis were not merely coincident.

In the case of POLYAK there was, along with a left-sided bone dilation, formation of an osseous cyst and latent multiple empyema of the accessory sinuses, exophthalmos, and optic atrophy on both sides, the right eye having become diseased a year previously. He is of the opinion that pus from the left osseous cyst made its way successively into the cells on the left side and then into those of the right, and that it found no means of exit and caused a dilatation of the cavities and pressure symptoms. In this way he explains the exophthalmos and the atrophy of the optic nerve on both sides when he demonstrated this case. Goldzieher and I were both doubtful as to the causal connection. Goldzieher attributed the bilateral exophthalmos and the atrophy to the presence of an acrocephalic skull (pointed head) (*Thurmschädel*) and to a hyperostosis of the wing of the sphenoid. In the light of our anatomical knowledge, Polyak's explanation seems fantastic and far-fetched. It is contradicted by pathology, and must therefore be set aside. It is really astonishing that the author should be able to picture to himself the pus proceeding from an osseous cyst on the left side into the neighbouring accessory cavities and through these to those of the right side, and still more that this wandering volume of pus should be able to throw the right and left accessory cavities into one common closed cavity, and should have caused, exactly a year before, exophthalmos and optic atrophy of the opposite side. This peculiar suppositious interdependence of accessory cavities and blindness is baseless. The connection advanced by Goldzieher between the pointed head (*Thurmschädel*) and optic atrophy and exophthalmos is well known in children, but in this case the sutures of the skull must long have been closed, and it is possible that we have to deal with an ostitic process which had developed later in the sphenoid wings. This idea derives support from the presence of

unusual thickness in the shell of the osseous cyst and the pre-existence of an acro-cephalic skull. This case can be best explained in the light of my observation, which showed a turbinal cell 23 mm. long, 19 mm. broad, 13 mm. high; the so-called bony cyst of the left superior nasal turbinal which formed the lower wall of the left optic canal and the wall of the left third of the optic sulcus. If we wished to explain the case in this way we would have to assume that such an anomaly is present as that the turbinal cell on the one side could form the boundary of both optic canals, as in the cases observed by us in which the posterior ethmoid cell bounded the optic canal of the opposite side, and, further, both optic canals. In the case of presence of such an anomaly of the turbinal cells a pyocele of the turbinal cell could give rise to an atrophy of the optic nerve as well as to exophthalmos on both sides.

In the case of GLEGG and PERCIVAL there was along with the right-sided empyema a bi-temporal hemianopsia and paralysis of the association movements. After operation this subsided. They considered the empyema as the direct cause of a lesion of the chiasma, the marginal fibres of which in Gudden's commissure brought about the association disturbances. Our morphological observations make the lesion of the chiasma possible through disease of the posterior ethmoid cells as well as of the sphenoidal cells. As regards the participation of Gudden's commissure in the association movements, that is a question for neurologists and ophthalmologists.

In our case there was, along with a left-sided empyema of the posterior ethmoid cells and sphenoid cells, a previously existing optic atrophy on the right side and optic neuritis with temporal hemianopsia on the left side. Improvement, to a small extent, followed operation: vision in the left eye was increased from $\frac{6}{15}$ to $\frac{6}{10}$. Six years previously a number of polypi had been removed from the left nasal cavity, and then there set in a flow of pus on the left side with an offensive smell and accompanied by persistent headache. For two months the right eye was blind, and three months later disturbance of vision appeared in the left eye with a temporal haemianopsia. We could only note slight improvement as being due to the operation. Syphilis was not present, and anti-syphilitic treatment had a negative result. The patient could not be kept for further observation, and I am therefore unable to report as to the ultimate fate of the left eye. Professor Lili agreed with me that we had in all probability established a causal relationship as there was no ground for any

other explanation. In addition it corresponded with morphological investigations. I possess a preparation in which the left sphenoidal cell alone forms the wall of the right optic canal and the wall of the middle third of the optic sulcus. Right-sided atrophy and right-sided temporal hemianopsia were on anatomical grounds to be explained by a lesion of the right optic nerve and of the chiasma in disease of the left sphenoidal sinus. As regards the accidental occurrence of both diseases together only the *post-mortem* examination can determine. I have already remarked that the statement advanced by MENDEL and LAPERSONNE, that the occurrence of unilateral neuritis is generally of nasal origin, cannot be substantiated. Not merely do cases give evidence against them but also our observation as to morphological relations that a one-sided disease of the posterior ethmoid or sphenoidal cell is able to cause a lesion of the ocular nerve of the opposite side and of the chiasma, and further of the chiasma alone or of both optic nerves. I have already taken my stand against the conventional opinion as to the causal dependence of the disturbance of vision upon a sphenoidal lesion only, and proved that in many cases the sphenoidal cell has nothing to do with the optic nerve and that it has close relations only with the posterior ethmoidal cells. In the same way I have confirmed this fact by my more recent observations, and I must therefore on this occasion again state that in simultaneous disease of the posterior ethmoid cell and sphenoidal cell both cavities must be taken into consideration. But, as we have seen, the sphenoidal cell need alone be taken into consideration in some few cases. Our observations permit on purely anatomical grounds of this natural explanation without having to resort to forced or improbable hypotheses.

Concerning contra-lateral disturbances *post-mortem* examinations have thrown no light. Those hitherto known deal with tumours and injuries in the region of the optic canal and hyperostosis of the wing of the sphenoid with diminution of the optic foramen. In empyema of the accessory cavities, periostitis, caries, perforation of the sphenoid, basilar meningitis, extra- and intra-dural abscess of the middle fossa, thrombosis of the ophthalmic vein, of the cavernous sinus, of the petrosal sinus have been found. The examinations of the sections are unfortunately defective, and microscopical examination of the optic nerve does not exist. Accounts of the relationship of the optic nerves in diseased and healthy accessory cavities and observation of the ethmoid veins and of the central veins of the

retina and of the radical veins of diseased accessory sinuses do not lend much light. Our observations establish the thirty-five different morphological close relationships of the posterior ethmoid cells, and of the sphenoidal cells to the optic canal and optic sulcus, *i.e.* to the optic nerve and the chiasma, and give an anatomical foundation to the building up of our knowledge of canalicular retrobulbar neuritis and of optic atrophy. Clinical observations should be followed up through means of exact pathological anatomical observations in every case.

SUMMARY OF ETIOLOGICAL FACTORS.

With regard to the etiology of the contra-lateral nasal disturbances, they arise chiefly from infection, extension of inflammation, physiological congenital bone defects, and the circulatory disturbances. The transmission of the diseased processes may occur by the channels already mentioned. Bone dehiscence in the optical canal and in the walls of the sphenoidal cavities plays an important rôle, so also what has been called the *semicanal* of the ethmoid and the course of the ethmoidal vein at this point, and, further, the varying thickness of the limiting bony septum exercise an influence. The ethmoid cells, when diseased, lying so close, set up a disturbance, as the limiting septum, which may be no thicker than tissue paper, and ethmoidal veins are very often lying free in the *semicanalis ethmoidealis*.

There may easily be circulatory disturbances resulting in perineuritis, hyperæmia, œdema, haemorrhage, exudation of the optic septum, thrombo-phlebitis, thrombosis, embolism and so forth. Bone defect favours the propagation of the inflammation; the varying resistance of the septum between the sphenoid cells and the optic canal plays a protecting rôle. We wish to emphasise on the ground of our morphological examinations that the transmission of the inflammation, the physiological bone dehiscence, the circulatory disturbances may evoke contra-lateral disturbances. Our examinations also explain a contra-lateral indirect fracture of the optic canal.

There is another very weighty point which I must establish, although the known morphological facts in several cases point to a causal connection, namely, the coincidental occurrence of both diseases side by side. A whole list of causes is known to us which may call forth an optic neuritis. Further, we have seen cases in which the operative procedure did not influence the

unfavourable course of the optic neuritis, and in which, in the long run, in spite of refusal of operation the neuritis spontaneously subsided along with the suppuration. There are many cases in which only the ophthalmologist knew the fact of the neuritis or of optic atrophy and could not settle its cause when the rhinologist could find nothing abnormal. The condition may arise primarily out of some ordinary cause of visual disturbance or blindness, and quite independently of the co-existent empyema of the accessory sinuses. In such cases the accessory sinus may in no way be responsible, and as clinical pictures may be associated without any causal connection, very careful criticism is necessary. Many cases which I have touched upon cannot be explained. The fact of a causal connection of a one-sided, or of a double-sided, or of a contralateral disturbance of vision and disease of the posterior ethmoid and sphenoidal cells is established.

THE IMPORTANCE OF THE SUBJECT.

The anatomical basis of this knowledge has been sufficiently proved by my morphological investigations. Exact clinical observations must be succeeded by subsequent *post-mortem* researches. My investigations, carried on diligently for years, are not yet completed, and I therefore request the very distinguished ophthalmologists whom I have the honour to address to use their best endeavours to assist by their experience and ideas in unravelling the important and interesting questions mentioned in my paper. I hope shortly to publish a monograph which will give fuller details of the researches and studies on canicular retrobulbar neuritis and optic atrophy of nasal origin which have engaged my attention for so many years.

SIR FELIX SEMON has been by the unanimous vote of the members of the London Laryngological Society elected an Honorary Member. This is the greatest honour that the Society has in its power to bestow, and we are sure that this last act on its part will meet with the approval of all who have watched the progress of the Society, and, it may be said, of laryngology in this country since the inception of the Society.

**A PRELIMINARY NOTE ON FOREIGN BODIES IN THE
UPPER RESPIRATORY AND DIGESTIVE TRACTS.**

By JOHN MACINTYRE, M.B., C.M., F.R.S.E., M.I.E.E.,

Surgeon for Diseases of the Nose and Throat Glasgow Royal Infirmary, etc.

CASES of foreign bodies introduced into the upper passages and œsophagus, whether impacted or not, are always interesting, but in the last ten years so much has been done by way of diagnosis and treatment that the subject is attracting more attention than ever.

Mackenzie, in his great classical work, says: "The literature relating to the impaction of foreign bodies may be said to begin with the elaborate memoir on the subject presented by Hevin in the middle of last century to the French Academy of Surgery. In this essay the author collected nearly all the instances of this accident scattered throughout the medical records of former times, and discussed the best methods of dealing with such cases. His work remains to this day the most complete account of foreign substances lodged in the œsophagus, and subsequent writers have added little to it, except descriptions of more convenient instruments for exploration of the canal and the extraction of bodies impacted in it."

The classical treatise on foreign bodies in the air-passages written by Gross of Philadelphia and published in 1854 is also a great landmark in the history of surgery. That much was done subsequent to these writers by way of diagnosis and treatment every one familiar with our special department is aware. There can be no doubt whatever, notwithstanding all the ingenious instruments and methods described, that the profession is very much indebted to modern science for the electric light, which made the exploration of the cavities and passages of the body by direct illumination a possibility, and also to the discovery by Professor Röntgen, because by means of the X rays, whether by screen examination or photography, much can now be accomplished which ten years ago would also have been quite impossible. The subject will be fully dealt with in a paper to be published later on, but meantime it may be said that the use of these two agents has thrown such an amount of light on diagnosis, prognosis, and treatment, that we are scarcely able at the present time to judge its full significance. Such a statement does not mean for a moment that the great

clinical work of the writers we have referred to, and many others, is being ignored. A similar change took place when men became familiar with the use of the laryngoscope, and the history of surgery shows what great improvement took place in methods, diagnosis, and treatment when the rhinoscope and laryngoscope were put into our hands. That the inspection of the trachea, in its upper part at least, and the oesophagus was attempted by many is common knowledge, but there can be no doubt that the electric light has enabled us to examine the lower part of the trachea, some of the bronchial tubes, and the oesophagus to an extent never dreamt of a few years ago. In the same way foreign bodies in the antrum of Highmore, in the nasal cavities, the chest, and oesophagus have been found and removed of late with the greatest facility when the X rays were first applied.

Professor Killian, whose great work on the examination of these passages by means of direct illumination is so well known, first gave the profession in this country an idea of what could be done. His paper was read at the Manchester meeting of the British Medical Association, in 1902. At the same meeting, when I had the honour of opening the discussion with him, the methods of applying the X rays in cases of foreign bodies were fully demonstrated. Anyone reading the reports of that discussion in the medical journals will see at once how much these two methods, viz. direct illumination of the cavities and inspection by means of the X rays, are complementary to each other, although there are certain foreign bodies which, from their nature and situation, may yet be beyond our power of detection by either means. Still, a considerable experience of foreign bodies in the upper respiratory tract has led me to the conclusion that comparatively few foreign bodies now can escape detection as long as both methods are thoroughly and efficiently employed.

As showing what has been accomplished of late, a single case may be quoted as having come under the care of Dr. H. v. Schrötter.¹ This surgeon records the case of a child, aged ten months, which was brought to him after having swallowed a piece of bone unusually large for an infant, and which had passed into the trachea. On the second day Dr. Schrötter removed the foreign body at the point of division of the right bronchial tube, and this without narcosis or local anaesthesia.

A curious result with the recent work in my own experience in

¹ *Gesellschaft für innere Medizin und Kinderheilkunde in Wien. Pädiatrische Sektion, Sitzung vom 25 October, 1906.*

the Glasgow Royal Infirmary has been the number of cases of foreign bodies sent in for treatment. No doubt, before this work became known a considerable number of these patients would never have been sent to the hospital at all, or would never have come on their own account. This is borne out in the fact that in a certain number of them the foreign body was not found, having passed *per vias naturalis*. Be that as it may the number of cases sent to me became so increasingly great of late that I asked my present house-surgeon, Dr. McKim, as a matter of curiosity, to look over the journal and give me the numbers. I found that since April 1, 1906, until July 7, 1907—that is to say, in fifteen months, 139 such cases had presented themselves at my wards. A study of the clinical aspects of the question shows that as far as the situation of the foreign bodies was concerned my own experience was very much that of all other authors. Thus, eleven of the foreign bodies were in the nostrils, three had also foreign bodies in the ear ten were either inside or in the neighbourhood of the larynx, two in the trachea and one in the bronchial tube. The remainder were at the base of the tongue, tonsils, pharynx, or oesophagus. In this connection it may again be pointed out that, as is well known, the larger foreign bodies, and coins for the most part, were arrested at the upper orifice of the oesophagus, and another favourite spot was the middle third. This fact has been largely brought out by means of the X-ray photographs, of which I have over fifty records of coins situated in these two regions.

The following is a list of the different kinds of foreign bodies, which, as usual, shows great variety: shilling, sixpence, pennies, halfpennies, farthing, fish-bone, false teeth-plate, sweet, pin, marble, shell, bead, boot-protector, ox-bone, safety-pin, button, hook of tooth-plate, small whistle, piece of glass, brass boot-eye, pea, boot-button, sleeve-link, teeth, hazel-nut, needle, badge, bean, key, piece of chalk, paper-clip, nail, ring, piece of meat.

With regard to the methods of detecting foreign bodies, let me say that the more experience I have of both methods the more I am inclined to think that, whenever possible, a foreign body should be directly inspected in whatever cavity or whatever passage it may lie, and it need hardly be said that this inspection should take place as soon after the accident as possible.

Just in the same way as a surgeon will use the rhinoscope or laryngoscope so that he may see a foreign body in the nasal, buccal, pharyngeal, or laryngeal cavities before operating, so the same

rule should be applied in the trachea or œsophagus. Some may be inclined to think that the ordinary œsophageal methods are quite sufficient in every-day practice, but that there are accidents due to rough usage in attempts to extract no one can doubt, and this will be brought out further on in this paper by the record of two cases which within the last year came under my own observation. Further, I have to make a protest against many of the clumsy œsophageal extractors which are now in the market. Many of the coin-catchers made of whalebone and tipped with different metallic instruments are badly shaped, their angles too acute, and the upper borders sharp enough to do great damage. I also make a rule in as many cases as possible while the foreign bodies are opaque to the rays to have an X-ray photograph taken, and in this connection I may say that skill and knowledge of the true conditions of an X-ray tube will enable an observer to detect some fish-bones and even vulcanite plates, especially if a small metal hook is attached to it, when one could scarcely expect to get a satisfactory photograph. Much information may be got without an X-ray photograph by a use of the fluorescent screen, and this method affords a very rapid means of diagnosis, especially in the case of coins. I should like also to point out that in certain cases I have found it convenient instead of extracting a large body by means of Killian's instruments to place the X-ray tube under the table in a dark room, and to extract the body while the image of the coin and instrument could be seen on the fluorescent screen.

The question of anæsthesia is a very interesting one, and by experience in these two methods it is interesting to note how many cases of foreign body may be successfully operated upon without the general anæsthetic. All the same, when the body is severely impacted, or where the patient is very young, or where the adult is very nervous, I do not hesitate to use a general anæsthetic. With experience and facility in the passage of the instruments, the percentage requiring an anæsthetic has become much less of late. It need hardly be pointed out that a great many of the instruments which were used before the advent of these two methods are still in use. The fact is, once a body is clearly seen one gets a fair idea at once from the appearance of the foreign body and its situation what instrument is best suited for the purpose, and in the nostrils, pharynx and larynx, I have found the usual forceps of great service. In the œsophagus the various coin-catchers have been largely used by me, but, as I have said

especially when they are properly constructed. It is in the deeper parts of the trachea and bronchial tubes and also below the level of the larynx that Killian's instruments become of the greatest value. I must here testify to the great value of the Killian instruments as modified by Dr. Morton and described in our own JOURNAL last year for small bodies and those that are difficult to catch. They are a great improvement upon some of Killian's earlier instruments, and I have much pleasure in acknowledging the valuable help Dr. Morton has afforded me. In many instances I have made modifications to suit my own ideas, and in one instance, where there was serious impaction, had to make an instrument specially for the purpose before the tooth-plate could be extracted with safety from the œsophagus.

Professor Schrötter and his son have paid great attention to the extraction of foreign bodies by means of direct illumination. In a communication lately received from Professor v. Schrötter he describes a new method of illuminating the cavities and passages of the body. In this paper he mentions the different methods which have been tried in the past by means of reflected light, refers to the Casper or Leiter methods by which the whole of the tube is lit up by means of electric lamps placed at the end of a handle, and points out that these methods, while throwing a light on the distal end of the tube, have their disadvantages. Fletcher Ingals favoured a small glow lamp at the distal end of the tube itself, which is certainly an ingenious idea, but there is the danger of the lamp breaking off—an accident which has also occurred—and again this method also prevented the free introduction of instruments and limited the range of vision. The disadvantages naturally become greater the smaller the instrument and the deeper the bronchial tube. Professor Schrötter, when describing his instrument, advocates the principal of a glass rod in the same way as the small dental instruments known as radiant spatulæ. Of course, a solid glass tube could not be used in the case of the trachea or œsophagus as instruments have to be passed through it, but he points out that the external surface of a glass tube acts in the same way as a solid cylinder for the transmission of light even if the side be very thin. A glass tube is taken of the necessary width for the passage to be operated upon, gradually decreasing from the end which is formed conically, and a glow lamp is brought to the side of it, and so we have a very serviceable instrument.

To make the instrument complete, however, it is necessary to exclude the light, and so a short tube is fixed to the holder in which

the glass tube is inserted. Professor Schrötter uses several small glow-lamps in the same holder, the film in each being made of osmium, giving a maximum of light and a minimum of heat. These four lamps are placed round slightly-indented glass tubes and connected with wires to the source of energy. Cooling arrangements are not considered necessary.

To concentrate the light the tube is silvered on the one side and blackened on the other, so that the eye looks through a dark tube

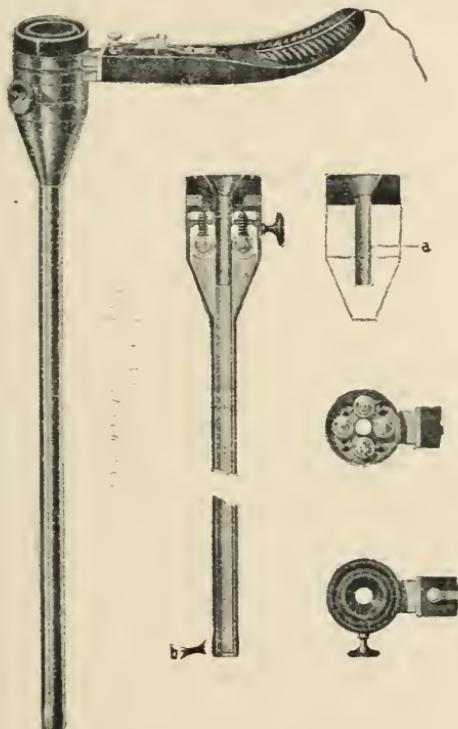


FIG. 1.—Professor v. Schrötter's new instrument for direct examination of the cavities of the body.

while the light appears at the distal end at the point where it is required to examine the object. The intensity of the light is very great, and an inspection of the deeper parts is quite possible, even small tubes giving enough light to allow an operation in a greater depth and in the small bronchii. The patient is not troubled with heat, darkening of the room is not necessary, and the operation generally is much simplified. The same instrument can be used for the ear, the nose, the mouth, the throat, and of course with modifications of the tubes it can also be used for the internal

cavities of other parts of the body. The design of the instrument will be better understood by referring to the diagrammatic representation below.

The difficulty which Professor v. Schrotter has raised about illumination is one which I thoroughly appreciate. Apart from the experience required in introducing the instrument, it is easily seen that unless the illumination be good the detection of small bodies, especially when lying in mucus or other discharges, necessitates the very best light possible. I may say frankly, although I have got various head-lamps from Paris, Berlin, and Freiburg, the illumination has not always been what was necessary. To begin with, most of the small lamps have a film which is not well suited for the purpose. To get the best results from the lens in front of the lamp the source of illumination should be a point, and as we all know the ordinary film of an incandescent lamp is not suitable for use even with a forehead mirror. The Nernst is better, while from this standpoint the oxy-hydrogen light is excellent. Of course, by moving the lens to and from the source of illumination we can focus to a certain extent at different distances. With passages like the trachea or oesophagus, where one may be working with a tube at one time six inches in length, and at another time twenty, there is often difficulty, especially, as I have said, when searching for small bodies. Professor v. Schrotter's idea, it is to be hoped, will overcome this to a large extent.

While 139 patients came to the Throat Department of the Glasgow Royal Infirmary during the time mentioned it must be understood that in all these operative procedures were not required; indeed, the actual extractions from all the cavities and passages did not amount to more than one-half. As will be readily understood, in some patients the history was doubtful. Thus in twenty-four cases no traces of foreign body could be found, a few refused treatment, and a large number of foreign bodies found their way through the oesophagus, and were recovered after having passed through the rectum.

Where no foreign body could be found or where it had passed into the stomach or intestines, careful directions were given as to diet and the regulation of the bowels. Attempts were made in all cases to watch the patients, and in many the foreign bodies were seen on the screen or photographed as they passed through the alimentary canal. In all cases the patients were requested to report themselves, but, of course, as usual in hospital practice, a proportion did not take the trouble to report themselves again. In every

case where an attempt was made to remove the foreign bodies by operative procedure the results were successful in the first attempt with the exception of one case, which will be described further on and in which the tooth-plate was subsequently passed *per rectum*.

Considering the large number of cases which come under observation, one is struck with the comparatively few fatal results considering the dangers that one would naturally fear patients would run. Indeed, in twenty years' experience I can only remember four. In one instance an infant was sent to my wards after the foreign body had been removed. It was then suffering from a large abscess in the neck and mediastinum; in the second the history was that of a girl having had chloroform for the extraction of some teeth. She was sent into my wards suffering from septic pneumonia, and there was only a suspicion that a small part of the root of one of the teeth had been drawn into the trachea with pus and blood. No foreign body was found, and the patient, in any case, was dying of septic pneumonia. No post mortem was allowed. In the third case, which most likely could have been saved, a young girl was sent into my wards with the history of having swallowed a halfpenny, seven days before. She was very ill with periœsophageal abscess. The coin was lying immediately behind the larynx, and it was easily enough extracted immediately after admission, but on the left side of the pharynx there was a considerable swelling, from which pus was coming. This patient succumbed three days afterwards from septic cellulitis of the neck. The fourth case was one of a child, a strong, healthy boy of four, who had put a handful of broken nut-shells into his mouth, and one had found its way into the larynx. The patient was brought in from the country at seven o'clock in the evening, four and a half hours after the accident. It was supposed that the foreign body had found its way into the trachea, but a spasm had taken place, and tracheotomy was performed by another surgeon,—unfortunately not sufficiently soon to prevent death. I was sent for, but the child was dead before my arrival. The *post-mortem* examination showed a half nut-shell, which had most likely been at first lying vertically in the larynx, had slipped into a horizontal position with the concave surface upwards, and had become firmly impacted.

These newer methods will no doubt bring about a great change in our views of operative methods. For example, in Bergmann's "System of Practical Surgery" Professor V. v. Hacker says the

high mortality is due to the fact that œsophagotomy is performed of late. As surgeons gain greater experience with recent methods, external operations will doubtless become less frequent, and the risks of injury followed by septic mischief, haemorrhage, and other complications will be largely minimised. In only one case in my own practice has the question of œsophagotomy been raised, and this is the case to which reference has already been made. Curiously enough four cases of impacted plates of false teeth were sent to me within a short period at the end of last and the beginning of this year. Three of these were readily enough extracted from the œsophagus, but this fourth case gave some trouble. An X-ray photograph showed the foreign body to be situated at the level of the fifth dorsal vertebra, and an attempt had been made to remove it before the patient came under my care by means of bougies and the coin catcher. He was put under chloroform, and after passing Killian's instrument I tried to remove the plate. It was found, however, that one of the hooks was strongly fixed in the inter-vertebral substance, so that I did not deem it advisable to use sufficient force to remove it. Unfortunately the plate was gold or I should have attempted the method adopted by Killian in a similar instance of heating a platinum wire and dividing the vulcanite plate. My intention was to try to make a small saw or other instrument which would divide the metal plate. The patient was put back to bed, was carefully watched, preparations were made for the operation of œsophagotomy, if necessary, and my house surgeon was instructed to let me know at once if anything took place. Next day the patient was perfectly well, swallowed milk diet, and suffered no discomfort beyond the fact of there being a little sickness. Curiously enough, two days afterwards the foreign body slipped down and the patient reported this sensation to the nurse. X-ray photographs proved that he was correct, and it was shown that the plate was no longer in the œsophagus. He was watched a few days and sent home with the usual instructions to keep a look-out for the plate. He remained perfectly well and continued his work, but another interesting point in this case is the fact that the plate did not pass by the rectum until four weeks afterwards.

IMPLICATION OF THE CHORDA TYMPANI AND TYMPANIC PLEXUS IN MIDDLE-EAR SUPPURATION.

By MACLEOD YEARSLEY, F.R.C.S.,
Senior Surgeon to the Royal Ear Hospital.

THE fact that disturbances of taste may occur in the course of middle-ear suppuration from implication of the chorda tympani and tympanic plexus is well known, and examples in the literature are not rare, but the following instance in which chronic suppuration was accompanied by annoying disturbance of the salivary secretion is, fortunately, more uncommon.

A gentleman, aged sixty-two, consulted me in October, 1906. For some years (about fifteen) he had suffered from discharge from the left ear, for which he had obtained occasional treatment from various aural surgeons. For several years (he could not be exact), he had complained of a "bad taste" in his mouth, with occasional flow of a sweetish fluid. This he took to be the trickling of pus down his Eustachian tube. On examination there was seen a perforation in the superior posterior quadrant of the right membrane, and on probing a sensation of bare bone could be felt. Discharge was fairly profuse and foetid. The use of peroxide of hydrogen, with syringing with perchloride of mercury solution, was tried for a week without effect, and excision of the ossicles was recommended in view of the fact that the condition was an old-standing one, and he lived at a considerable distance from special assistance. On November 2 he was anaesthetised, and the malleus, incus, and remains of the membrane were excised. The outer attic wall was removed with the sliding chisel, and part of it was found to be carious. There was marked caries of the body of the incus. He made an uneventful recovery, and for a time the "pouring of pus down his tube," as he expressed it, was only slight. He returned home to his own medical attendant (Dr. Brayn), and the latter carefully carried out directions as to treatment.

He returned to me in March, 1907. The right ear was quite free of discharge, although he persisted in syringing it occasionally and trying to force the solution employed down his Eustachian tube. This he sometimes effected by using a syringe with a bulbous nozzle, which occluded his meatus. He still complained of "discharge in the throat," which he believed to be pus from the ear, although I did all in my power to alter his conviction. The "discharge" was worse in the morning, and he complained much of a "sickly sweet taste" in the mouth.

The nose was carefully examined under cocaine and adrenalin, but no disease in the nasal chambers, accessory cavities, or naso-pharynx could be found. The larynx was normal and the trachea healthy.

At my request he brought me several ounces of the "discharge" collected from his mouth in the morning. This was examined for me by Dr. Eastes on March 22. The report stated it to have a faintly alkaline reaction. The deposit after centrifugalising consisted of squamous epithelium, and various bacteria of the buccal type. There was no pus. It had all the characters of paralytic salivary secretion, but no fermentation tests for saliva were undertaken.

On March 27 Sir Lauder Brunton saw him with me in consultation. Beyond the fact of signs of gouty kidney and a hypertrophied heart with a failing mitral valve there was nothing which pointed to any serious disease, and Sir Lauder Brunton expressed the opinion that the salivary fluid was possibly due to a gouty neuritis of the chorda tympani originally induced by the middle-ear suppuration. He advised aspirin, under which treatment the symptoms certainly ameliorated.

I saw him again in May. Owing to his persistent efforts to cleanse his Eustachian tube by injections he had reinfected the ear, but the fresh suppuration speedily yielded to treatment. His salivary symptom still continued, although it was less troublesome.

I am inclined to think that the symptoms in this case were not due simply to interference with the chorda tympani but rather to that of the tympanic plexus. The tympanic branch of the glosso-pharyngeal nerve enters largely into the formation of that plexus, whilst the parent trunk of the tympanic furnishes secretory and vaso-dilator fibres (through the otic ganglion and auriculo-temporal nerve) to the parotid gland. The chorda tympani furnishes secretory and vaso-dilator fibres to the sub-maxillary and sub-lingual glands, but its destruction in the excision of the ossicles makes it much less likely to be at fault.

The secretion of saliva may be affected by chemical or mechanical irritation of the tympanic plexus and of the chorda tympani either during medication or during instrumental treatment, or by inflammations of the nerves in purulent otitis media. I have not, however, been so far able to find any recorded cases in which the symptom was so marked as in the case just described.

Disturbances of taste from irritation of the tympanic plexus are

more common. They have been reported by Schlüchtling (1) from Körner's clinic and myself (2).

A word as to disturbances of taste from lesion of the chorda tympani. Opinion is still divided as to the precise origin of this nerve, whether it belongs to the second or third division of the trigeminus. The path of its taste fibres is, moreover, a variable one; they may go directly from the chorda tympani to the otic ganglion without passing through the facial, or they may join the facial after its exit from the stylomastoid foramen without utilising the chorda tympani. In the face of these difficulties it is scarcely to be wondered at that the functional disturbances which occur after destruction of the chorda tympani during its course through the middle ear do not always fit in with one's expectations.

Further, the statements made by patients as to these disturbances of taste are of little value in determining the frequency with which they may occur in middle ear disease when the chorda tympani is destroyed, and they may escape detection even in those who observe themselves most carefully. Urbantschitsch (3) found forty-six patients suffering from gustatory disturbances out of fifty with middle ear disease, mostly chronic suppurations. Carl (4), who had long suffered from middle ear suppuration, observed sharp stinging sensations on the left margin of the tongue, beginning at about the middle and shooting with lightning rapidity to the tip, whenever he cleaned his ear with cotton pledges or irrigated it with astringents and salicylic acid.

REFERENCES.

1. *Zeitsch. f. Ohr.*, vol. xxxii, p. 388.
2. *Journ. of Laryngol., Rhinol., and Otol.*, May, 1898.
3. *Anomalien des Geschmack*, Stuttgart, 1876.
4. *Arch. f. Ohr.*, vol. x, p. 163.

ON THE USE OF ADRENALIN TO DEFINE NEW GROWTHS AND INFILTRATIONS.

BY STCLAIR THOMSON, M.D.,
London.

THE haemostatic value of the various extracts of the supra-renal gland is of immense service in rhino-laryngology. This action is chiefly employed to prevent or arrest haemorrhage.

It was by accident that I arrived at the use of adrenalin to

define new growths and infiltrations in the mucous membrane. Some months ago a patient was very anxious to have a deformity of her nasal septum rectified. She had been under treatment for some time with lupus in the larynx, pharynx, inferior turbinals, and on the face; but all had apparently been completely arrested. She was therefore ordered in for a submucous resection of the septum, and half an hour before the operation the septum was prepared in the usual way by applying to it strips of ribbon gauze soaked in equal parts of adrenalin and 20 per cent. cocaine. When the patient was on the operating table and the ganze removed I was much struck with the appearance of the mucous membrane over the deviation. It was, of course, insensitive, and was thoroughly blanched, but standing out remarkably by contrast were several apple-jelly deposits, each about the size of a pin's head. The operation was therefore abandoned. This patient was observed on several subsequent occasions in the clinic, and when inspected no one would suspect that there was anything amiss with the rosy mucosa of the septum, but after the application of adrenalin the apple-jelly points stood out. These were subsequently touched with the galvano-cautery and the phenomenon then ceased to recur.

I have since employed this method in several cases of lupus, and now consider that no case is thoroughly inspected or cured until the apple-jelly points cease to appear after applying adrenalin.

Recently when performing thyrotomy for epithelioma of the larynx in a syphilitic and very alcoholic subject, after the thyroid cartilage had been split, the tissues were so uniformly congested that it was difficult to assure oneself of the extent of the growth. Some adrenalin, with about 2 per cent. cocaine added, was applied on a pledget for ten minutes. At the end of that time the growth by contrast was so well defined that it was seen to invade not only the affected vocal cord but to extend across the anterior commissure to the front of the other cord. From the previous laryngoscopic examination we had only a slight suspicion of this extension; the adrenalin rendered it positive.

Infiltrations and new growths, owing to the low grade of tissue, are, of course, supplied with vessels of feeble contractile power. This explains why the surrounding healthy tissue blanches under the astringent action of the supra-renal extract, while the vessels in the new growth remain distended, and appear congested or even turgid by contrast.

Its diagnostic assistance has not proved of much service in

tuberculosis. Very possibly it has already been employed by many colleagues, but as it seems of service and capable of further developments the above note appears worthy of record.

NOTE ON THE PRESENCE OF SPIROCHÆTÆ AND OTHER THROAT ORGANISMS IN DISCHARGES FROM THE MIDDLE EAR.

BY WYATT WINGRAVE, M.D.,
Pathologist Central London Throat and Ear Hospital.

RECENTLY in the course of systematic examination of aural discharges in the pathological laboratory of this hospital, I have observed that *Spirochætæ* (*Dentium*) and *Fusiform* bacilli occur so frequently as to merit notice and further investigation as to their nature and significance. Since adopting a special staining method I have found that quite 30 per cent. of chronic discharges from the middle ear contain those micro-organisms.

For many years my interest has been centred chiefly upon the cytological aspect of discharge together with search for acid-fast bacteria, and in perfecting the staining process for cells it was found that certain micro-organisms became very prominent which had doubtless hitherto not been remarked owing to their not staining with the acid and alcohol methods usually employed.

The process now used is as follows: (1) Prepare cover-glass smears and fix by heat. (2) Wash for three minutes in a 1 per cent. solution of anilin gent. violet in anilin water. (3) Wash away all excess of this stain in water. (4) Counterstain for three minutes in a 1 per cent. solution of "medicinally pure" methylene blue in 2 per cent. borax solution. (5) Thoroughly wash again in water, dry and mount in xylol balsam.

These solutions should be fresh, and carefully filtered. Distilled water only should be employed.

By this method, spirochætæ and fusiform bacilli appear a pale lavender colour. The former are also rendered prominent by basic fuchsin, but this stain I generally reserve for counterstaining Gram specimens, as it is far inferior to the violet and borax blue —a combination which I find superior to all others for cell differentiation and these particular organisms. An immersion lens is necessary to see them in perfection.

It is not surprising that these forms have not attracted much attention; since they are not easy to stain, they are not very prominent objects in fields prepared by the Ziehl-Nielsen process, and doubtless the search for organisms of another group has led to their being overlooked. These spirochaetae occur often in enormous numbers, so much so that the specimen strikingly resembles a smear taken from the mouth or fauces, a similarity intensified by the frequent presence of squamous epithelium and the fusiform bacillus of Vincent. Their almost constant association with this organism, and the presence of similarly staining intervening forms is strongly suggestive of a close biological relationship between them.

The name "spirochæta" is perhaps scarcely appropriate, since the organism in question presents so many different shapes such as undulating (four to six curves), looped, twisted, coiled, slightly bent, and even straight. The typical spiral or corkscrew character of Schaudinn's *Sp. pallida* is very different, being a real spiral consisting of ten or more close turns. These, however, are much coarser, fewer, and more resemble the *Sp. Obermieri*, in fact they are more like a whiplash or an eel in motion, being undulating rather than spiral. They all stain fairly well with Giemsa's fluid, azure blue, and other expensive reagents. The spirochæta is Gram negative. The Fusiform bacillus is more readily responsive to basic stains, it is also Gram negative and easily cultivated on agar, but I have not succeeded in growing the spiral forms.

While it is still early to discuss their pathogenicity, the presence of these and other mouth organisms in the middle ear so frequently and in such large numbers is a matter of some significance and clinical importance. Pursuing the research, particularly in the line of their presumptive path—the Eustachian tubes—I have taken smears and inoculated agar and serum media from the naso-pharynx both in healthy subjects and those suffering with tympanic discharge. In nearly every healthy adult the naso-pharynx proved to be sterile, but in those suffering with ear discharge, mouth organisms (spirochætae, bac. fusiform, torulæ, diplococci, etc.) were readily demonstrated. The exceptions occurred in those convalescing from "colds" but otherwise healthy. In them *Diplococcus catarrhalis*, pneumococci, and Pfeiffer's influenza bacilli were present. Specimens were taken from the naso-pharynx by introducing a curved glass tube behind the soft palate, through which a platinum loop or cotton-wool "swab" was easily passed and withdrawn without contamination by the mouth or fauces.

Although this strengthens the view that the Eustachian tubes are channels of infection, it may be urged that spirochaëtae are not peculiar to the throat, and that they are said to occur in any region where tissues are breaking down.

NOTES.

REVIEW OF THE HISTORY OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

A CORRECTION.

THE attention of the writer of this review has been drawn to a *lapsus calami*, which is probably so obvious that it is not likely to have misled any reader. At the same time he is desirous of correcting it. Those who have read the review would notice that in the reference to Dr. John Macintyre's presidential address (*Journ. of Laryngology, Rhinology, and Otology*, July, 1907, p. 322), he is credited in the year 1893 with having dilated upon the uses of the X rays in the diagnosis of diseases of the throat, nose, and ear. Although Dr. John Macintyre's name is widely identified with the use of these rays they were, as a matter of fact, not introduced into science until four years later, and therefore the statement is an erroneous one. The writer begs to apologise for his error, which those who realise the every-day use into which this agent has come, and still more those who are familiar with Dr. Macintyre's researches and publications in connection with it, will readily accept. It is only right to add that when reference was made to what Dr. Macintyre had done in the way of advancing the application of physical agents in relation to diagnosis and treatment, his energies had been by no means confined to this department of our work, and those who have read the *Transactions of the British Laryngological Association*, more especially those who were present at its meetings, will remember how he took up the science of bacteriology in its earlier days and did pioneer work in the popularisation of its bearings and importance in regard to the pathology of the diseases of those parts of the human frame to which we specially devote our attention. The writer feels that it is the scantest justice to Dr. Macintyre to make this emendation.

THE SPITTOON AS A SIALOGOGUE.

In an amusing article on the question: "Shall we or shall we not have cuspidors?" the editor of the *Montreal Medical Journal*, January, 1907, discusses the subject learnedly. He says that it is a question of considerable importance, and one that has a wide physiological bearing, inasmuch as the cuspidor is actually a sialagogue. To quote:

"A cuspidor in the middle of a room is an instant outstanding invitation, which, thanks to ancestry and inherited habits, compels attention. In the matter of cuspidorial marksmanship nothing but a bull's-eye will do. An inner is annoying; a magpie or an outer disgusting; for is not secretion of saliva a stage in the physiology of nausea? And a miss is appalling.

"Besides, on the sialic range, if many misses are recorded the marker may give notice. Of course, the shots should be classified: the nursery match for green shots; a more advanced, larger range for second class shots; whereas first class shots might be allowed in the living rooms. The position this leads to is this: If a cuspidor induces a man to spit who had no thought or intention of doing so, and if one man in ten misses the mark, the city bye-law is at once infringed, and the public health hindered, to say nothing of the public being outraged. Hence, to guard against the possibility of bad marksmanship, the only recourse would be to increase the size of the target."

PRICE BROWN.

PROCEEDINGS OF THE AMERICAN LARYNGO-
LOGICAL ASSOCIATION.

Twenty-ninth Annual Congress, held at Washington, D.C., May 7, 8, and 9, 1907, in connection with the Seventh Triennial Congress of American Physicians and Surgeons.

(Continued from page 342.)

Tuberculosis of the Accessory Sinuses of the Nose.

The scientific business of the Congress was opened with a paper with the above title, read by Dr. J. W. GLEITSMANN, of New York City. The paper, which closed with a bibliography of recorded cases, was, in the main, an analysis of these cases. The majority of instances of sinus tuberculosis are referable to extension from

some adjoining focus. In twenty antral cases tuberculosis of the bones of the nose or of the superior maxilla was found twelve times. The majority had pulmonary diseases, and only a few had the local disturbances of antral diseases without constitutional symptoms, but at operations tubercle bacilli were found in the antral contents. In eight the bacilli were found in the external discharge. Tubercle of other sinuses must be rare, as the author had found records of only four cases of frontal disease and one of combined ethmoidal and sphenoidal disease. Pathological changes are very much the same as in nasal tubercle. Empyema, exuberant granulations, caries, cheesy deposits, are all found, while examination of the sinus lining has shown exfoliation of epithelium, extensive small-cell infiltration, penetrating the superficial as well as the deep layers of the mucosa, while the middle strata have revealed the fibrous structure of the connective tissue, containing serous liquid and some leucocytes. Efferent glandular ducts and their lumina have been found enlarged, giving rise to cystic spaces, and giant-cells have been found in the infiltrated tissue. Of the entire number, only three cases showed confinement of the tuberculous process to the antrum, viz. the cases of Coakley, Gaudier, and Keckwick. Dr. Gleitsmann gave summarised clinical histories of some of the more important cases. Prognosis must be regarded as unfavourable. Treatment is eminently surgical, and does not differ from that generally adopted in severe cases of sinus disease. It naturally has to be removed. General health must be supported, drain on the system combated, and the patient's mental condition encouraged. We have no positive knowledge up to the present time that tuberculin or any of its derivatives would make any impression on these sinus cases. Not much could naturally be expected from such remedies under the given conditions or from the opsonin plan, for all these are principally confined to the elimination of bacilli (found in only a minority of sinus cases), and they do not influence directly the conditions due to the extension of the pathological process. Dr. Gleitsmann finds no contraindication, however, to their use, and would be inclined to try them in view of the favourable results reached in uncomplicated nasal tuberculosis.

Dr. C. C. COAKLEY, New York, gave some additional facts as to his own patient, whose case was referred to by Dr. Gleitsmann. This patient had been under observation for over two and a half years, and when last seen had no evidence of the disease in any other part of the body. Diagnosis was positive in this case, as

giant-cells containing tubercle bacilli had been found in the tissue removed from the antrum.

Professor GUSTAV KILLIAN, of Freiburg, a guest of the Association, stated that he had had a case of multiple tuberculosis of the bones with caries of the left frontal sinus. Operation was followed by recurrence of the sinus condition. There was tuberculosis of the maxilla bone and of part of the antral walls, but no pus. Tubercles were found in the mucosa of the frontal sinus.

Dr. HARRIS P. MOSHER, Boston, referred to a low grade of tuberculosis, a scleritis which has defied treatment and diagnosis as to cause. Finally the use of tuberculin determined its nature. Dr. Mosher had recently been giving tuberculin in certain sinus cases, but thus far had obtained no reaction. In the ordinary forms of tuberculosis in sinuses it was difficult to find bacilli. He would not consider tuberculin of much value in these cases as compared with the usual methods of surgical intervention. The discussion was closed by Dr. Gleitsmann, who referred to the work of Bartoles, who had endeavoured to formulate the condition known as the tubercular state, declaring that before this period arrived there was a pre-tubercular epoch manifesting itself mainly in lymphoid infiltration, a hydæmia of the parts involving the lymphoid tissue similar to the hydæmia observed in septic cases before real septic symptoms manifested themselves.

Massage of the Pharynx.

A short paper on this topic was presented by Dr. SAMUEL W. LANGMAID, of Boston, who exhibited an instrument which had been devised for the purpose named by an eminent tragedian, the late Edwin Forrest. This instrument was a smooth wooden handle with curved ends, which Forrest was accustomed to sweep around in his throat in order to "ream out the old trumpet" as he expressed it. It had been impossible for various reasons to discuss with the actor the latter's views as to the value of the manipulations referred to. Dr. Langmaid had long been accustomed to recommend to his patients massage of the throat by some such implement as the broad, rounded extremity of a tooth-brush handle. It greatly reduced the irritability of the pharynx, removed enlarged follicles on the posterior wall, and in general seemed to reduce hyperæmia. Since writing his paper he had found that a century ago a certain British Admiral, who wrote more as an osteopathist than as a masseur, recommended instrumental massage of the mouth and

throat not only as a prophylactic measure but also as a curative for sore throat.

Dr. J. SOLIS-COHEN, of Philadelphia, stated that he had often used the so-called extension-finger of the dentists in pharyngeal manipulation so as to accustom patients to the handling of the epiglottis.

Dr. G. HUDSON-MAKUEN, of Philadelphia, believed that in these cases much could be done in showing the patient how to keep quiet during examinations by having him manipulate the pharynx with the handle of a tooth-brush or similar instrument. The patient's attitude is co-operation, and he should be taught to give the physician intelligent assistance. Dr. Makuen could not agree with Dr. Langmaid's statement that singers and speakers had anaemic pharynges.

Dr. CLARENCE C. RICE, of New York, was inclined to agree with Dr. Langmaid on this point. In his experience noted singers and actors did not, as a rule, have much chronic pathological change in their throats. His own feeling was that the strong use of the voice and vibratory massage of the pharynx tended to atrophy and anaemia rather than to congestion. If he found congestion in a singer's pharynx without any special nasal or post-nasal catarrh he would ascribe it to tobacco or alcohol rather than to voice use. In general, intelligent massage was a useful therapeutic measure.

Dr. LANGMAID wished, in closing, to emphasise the value of instrumental massage of the throat. Vessels were thereby reduced to their proper size by the flowing away of the excessive blood, and there ensued a tonic contraction of the tissues.

Removal of Papillomata of the Larynx by Direct Instrumentation with the aid of Killian's Tubes.

Dr. CORNELIUS G. COAKLEY presented a paper reporting six cases of this nature, and discussing the general mechanical problems involved. He had tried the Kirstein method of examination years ago but had given it up, but observing at Killian's clinic the ease with which bronchoscope tubes were passed through the larynx, it occurred to him that such a tube, with a window on one side, could be used for the removal of laryngeal papillomata. He had had opportunity to give the method a trial in six cases. In all a general anaesthetic was used. Some time might be saved by cocaineising the pharynx and larynx before the administration of the anaesthetic.

The patient should be placed on the back, the shoulders brought to the edge of the table and, supported by an assistant, allowed to hang over. The operator should sit on a low stool, the height of which can be so adjusted that the eye was directly opposite the widely-opened mouth. The tongue should be grasped with forceps and drawn out, thus raising the epiglottis and facilitating the introduction of the spatula beyond the tip of the epiglottis. The tongue is now allowed to fall back into the mouth, and the spatula is easily passed directly into the supra-glottic portion of the larynx. A good view of the cords is now readily obtained, and any growth thereon can easily be removed by a straight forceps passed through the spatula. The Kirstein headlight has been the illuminating agent. It has been somewhat difficult to remove multiple neoplasms on account of obscuration of the field by blood and mucus, in spite of frequent wiping away with cotton. Out of the six cases the result was satisfactory in four. One proved to be malignant and required a thyrotomy, while in one the bulk of the growth appeared to be caught between the spatula and the anterior portion of the larynx.

Professor GUSTAV KILLIAN said that he had two cases under observation in which he had operated in the method described by Dr. Coakley. In such cases it is necessary to cocaine the larynx very thoroughly, or it will contract from the contact of the tubes so that nothing can be seen. This method obviates laryngotomy and tracheotomy. If the patient can breath sufficiently well to allow of general narcosis, the direct method of operating may be employed. In recurring cases arsenic should be given for a long time. Potassium iodide also seemed to have some power in preventing the recurrence of papillomata.

Dr. E. FLETCHER INGALS, of Chicago, had had several successful cases by the direct method. In one case during operation the larynx began to close. The child could not breathe, so he had to do tracheotomy quickly, as he had no intubation tube. In general he was inclined to believe that tracheotomy was best in all cases in young children, though Dr. Coakley's experience had demonstrated the fact that it was not necessary.

Dr. J. PAYSON CLARK, Boston, referred to a paper on this general subject presented by him to the Association some years ago, and gave the later history of some of the cases therein referred to. He had used the direct method in removing the growths. He was still a partisan of tracheotomy, as it gave the larynx perfect rest during which a papilloma was more likely to

atrophy than when the child was using the larynx as a respiratory organ.

Dr. EMIL MAYER, New York, spoke of some of the disadvantages of the tube with reference to the heat from the head-light. The attachment of the light to the handle of the spatula was a great improvement. His own experience as to recurrence had been the same as that of the preceding speakers.

The paper was further discussed by Drs. H. L. SWAIN, CASSELBERRY, COOLIDGE, LINCOLN, LANGMAID, HUBBARD, DELAVAN and INGERSOLL. Discussion was closed by Dr. COAKLEY, who stated his belief that cases of recurrence in children were cases in which new papillomatous areas occurred. Such would crop up in spite of all we could do. He certainly would not consider any cases as cured unless there was a freedom from return of the growth for several months. He believed, however, that if these cases were seen early it was often possible to avoid the deformity of an external operation; but one should not give an anaesthetic without having a tracheotomy tube handy. He preferred to apply 10 per cent. cocaine before the general anaesthetic was given, waiting sufficiently for the cocaine to act. He was not sure of the efficacy of pure carbolic applications to the seat of the growths. It was at least harmless, but he would not use it unless the patient was wearing a tube. He had used cocaine in connection with chloroform several times without bad results. He knew, however, that such a combination was regarded by some as risky. A tracheotomy tube, if worn some years, would be likely to cause a certain amount of stricture, though this might cause no trouble. Parents were naturally averse to having scars on their children's neck, especially with girls. On the other hand, tracheotomy was distinctly of service in giving rest to the larynx.

Ophthalmological Manifestations of Latent Disease of the Nose and its Accessory Sinuses.

Dr. FRANCIS R. PACKARD, of Philadelphia, reported a series of cases illustrating the relation between eye and nose conditions as suggested by the title of his paper. The examinations of the eyes had been made by Dr. W. C. Posey, of Philadelphia. Dr. Packard stated his belief that there should be more active correlation between the ophthalmologist and rhinologist in order to insure the recognition of this class of cases. Experience had shown that the ocular symptoms occurring as a result of sinus

disease might variously affect the vision and visual field, orbit, lachrymal apparatus, lids, extra-ocular muscles, conjunctiva, cornea, pupil, and uveal tract, and might lead to cataract, reflections, asthenopia, headaches, and neuralgia. His series of nine cases bore out the foregoing statements. The truth of this theory of connection between the two organs was borne out by the results of treatment. Dr. Packard referred to various contributions on the subject by various authors.

Dr. F. C. COBB, Boston, Mass., said that in sinus disease conjunctivitis may arise from direct infection from nose to eye, but with regard to astigmatic affections there was little satisfactory evidence. There was a tremendous neurasthenic element in all these patients, and allowance ought to be made for this before making positive statements as to the relations between the maladies of the two organs in question.

Dr. H. P. MOSHER thought ptosis a rather unusual symptom of latent frontal sinus disease. He had, however, seen it once. He had come to the conclusion that the X ray would clear up many cases of weakness of vision due to trouble in the sinuses or ethmoidal region. An ethmoidal condition might be revealed which had given no signs in the nose. Discussion was closed by Dr. Packard.

Spasm of the Oesophagus.

Dr. JOHN W. FARLOW, of Boston, reported the case of a woman, aged fifty, who was subject to spasm of the oesophagus and whose father and paternal uncle were subject to similar attacks. The patient herself had had a few attacks of discomfort of the throat while eating, and four years ago, while eating a piece of raw apple, became pale, looked distressed, put her hand to her throat and was evidently in great distress. Pain was felt in the lower part of the neck, did not extend to the back or arm. She was able to speak; the pulse and the breathing were not affected. She was unable to swallow anything during the seizure. Hot applications to the neck gave comfort, but did not relax the spasm. In about twenty minutes she felt relief from pain, raised some frothy mucus which had collected in her throat and the attack was over. Examination showed only a slight chronic pharyngitis and a moderate enlargement of the lingual tonsil. She then went for a year without further seizure, and the third attack did not come on for still another year. Massage of the neck was begun, cold

compresses used and local treatment applied to the throat. She has now gone another year without an attack, but the author admits that treatment may not have had any effect. He would ask, what is the nature of such attacks, and how are they to be differentiated? Angina pectoris would cause great dyspnoea, pain in chest radiating down the left arm, and there would be changes in the pulse and breathing. These were all wanting in his patient. Oesophageal spasm is considered as more likely to occur in neurotic patients, but this woman is not in the least neurotic. A further matter and the one of practical importance concerned measures of relief. The patient was unwilling to allow the use of any anaesthetic which might have caused unconsciousness. A hypodermic of morphine might have relieved her, but in the two attacks in which Dr. Farlow saw her she seemed hopeful that the spasm would soon relax and was loth to have morphine used. As she could not swallow and her mouth was full of saliva and mucus he did not think that cocaine would have had any effect. Emetine had been suggested in tablet form, and the patient could carry the remedy with her, to be used at the onset of any further attack. Perhaps apomorphine in $\frac{1}{16}$ gr. hypodermic dose would be efficacious, but as it would require from five to twenty minutes to act it might not really shorten the attack. Dr. Farlow asked for therapeutic suggestion from those present.

Dr. H. L. SWAIN, New Haven, Conn., had had a recent case of the kind referred to by Dr. Farlow. His patient referred the origin of his spasm to a point on the left side of the throat. There would be a sort of cramp with pain, and then until the throat relaxed nothing could be swallowed, even water. The sigmoid sinus was cocainised and instrument passed down to a level just below the cricoid. Then the man was able to swallow. By the oesophagoscope a round swelling was discovered on the left side about 25 cm. down from the teeth. A mild silver nitrate solution was applied, but the patient did not report again and his later history was unknown. The condition seemed to be a cramp of the oesophagus.

Dr. W. E. CASSELBERRY, Chicago, wished that Dr. Farlow had tried cocaine. He had had several cases himself similar to the one reported as to symptoms at least, and in these cocaine had done good service. Even if we are not able to apply the remedy directly to the seat of spasm enough exudes through to near the place of spasm to affect the muscles in the neighbourhood.

Dr. L. A. COFFIN thought that some of these cases were instances

of disordered reflexes. In one case cure had resulted by the removal of adenoids. There might be various peripheral points from which the stimulus would come, it being expended in each case on the oesophagus.

Dr. E. FLETCHER INGALS, Chicago, had had under observation for some weeks a case similar to Dr. Farlow's. The passage of bongies of large size gave relief. Cocaine might be used before passage, though his patient preferred its omission. General tonics and bromides in these cases were an adjuvant to treatment.

Professor GUSTAV KILLIAN said it was necessary to exclude changes in other organs before making a diagnosis of local spasm. The latter might be primary or secondary. In one case it came from a diseased stomach. In other cases the patient eats too rapidly, and does not masticate sufficiently. He had devised an instrument to illustrate to the patient the effects of insufficient mastication. Such a demonstration had more effect on the patient's mind than any amount of general advice.

The PRESIDENT, Dr. A. W. DE ROALDES, wished to call attention to the fact that some of these spasms might be secondary to disease of the nervous system. He had seen the condition in tabes. It might come on not only late in this malady in which clonic attacks were often noted, but also in the early stages. In one of his patients the oesophageal symptom was the initial evidence of tabes.

Dr. G. HUDSON MAKUEN believed in the existence in many of these cases of a nervous or psychical element. The patients could not swallow because they thought they could not, or were afraid they could not. They always did better while under a condition of mental exhilaration. This might arise from the constitutional effect of cocaine when applied, rather than to the latter's effect on the spasmodic factor. In one of his own patients there seemed to be a unilateral paresis of the pharyngeal muscles.

Dr. FARLOW closed the discussion, stating that while all that had been said was interesting no one had offered any suggestions as to treatment of his own case. Exhilaration was not a factor in his own case, nor was improper eating. If cocaine was applied when the mouth was full of saliva it would probably fail to act. In his own patient he would feel loth to pass an instrument of any size down the oesophagus, especially when the patient was gasping for breath. Methods of treatment which could be used in dispensary patients with frequent attacks could not be used with patients who went a long time between attacks and were in perfectly good health in the meantime. It was worthy of note that the

father and uncle of his own patient were affected in the same way, also an aunt and a sister. In this instance there seemed to be some family peculiarity.

(*To be continued.*)

Abstracts.

LARYNX.

Greene, D. C.—*Review of Cases of Cancer of the Larynx treated in the Wards of the Massachusetts General Hospital since 1874.* “Boston Med. and Surg. Journ.,” vol. clvi, No 25, p. 811.

Twenty-four cases: In twelve the diagnosis was not confirmed by the microscope, all advanced cases in which, with one exception, palliative tracheotomy for the relief of dyspnoea was performed. Diagnosis was made by laryngoscopic examination.

Age.—Youngest twenty-seven, oldest seventy-three. Greatest number of cases (eight) was between fifty and sixty, and between forty and fifty and sixty and seventy there were six each. Only two were under forty-five.

Sex.—Twenty men, four women.

Operations.—None in two (these died of asphyxia, one in hospital, one three months after leaving). Tracheotomy in twelve, all but one survived for several months, one for three years; in all the disease was very extensive. Epiglottidectomy by subhyoid pharyngotomy in two (both died from pneumonia two and four days later respectively). Laryngotomy in three (one case died eight hours after, one had recurrence in two months, one was still without recurrence after four years). Total laryngectomy in four (one died from shock, one from aspiration pneumonia, one died of recurrence in five months, one had recurrence in four months). Mortality in the ten operations for cure was 50 per cent. Recurrence 30 per cent., no recurrence in 20 per cent.

In the twelve cases histologically examined epithelioma was found in ten, medullary cancer of epiglottis in one, adeno-carcinoma in one (the latter was excised without removing larynx, and forms the tenth of the operations for cure).

The author insists that every case of hoarseness in a person over forty years of age, persisting for two or three months without improvement, should be examined with the laryngoscope. *Macleod Yearsley.*

Kuttner, A. and Meyer, E. (Berlin).—*Does the Recurrent Laryngeal Nerve in Man contain Sensory Fibres?* “Arch. für Laryngol.,” vol. xix, Part III.

The writers of this paper dissent from the view of Massei that paralysis of the recurrent laryngeal nerve is associated with more or less diminution of sensation, and that this nerve, therefore, contains sensory fibres. They examined with the laryngeal sound twenty cases of recurrent and posticus paralysis of different origins, some unilateral and some bilateral, and could in none of them detect any decrease of sensibility below the normal. Since, however, it could not be denied that any possible loss of sensation might be imperceptible in the presence of the

still intact superior laryngeal nerve, the authors endeavoured to produce an experimental paralysis of this nerve, before its passage through the thyro-hyoid membrane, by the subcutaneous injection of an adrenalin-novocaine solution. Should, then, the affected side of the larynx become completely insensitive, the question as to the presence of sensory fibres in the recurrent laryngeal would be decided in the negative. Owing, however, to the impossibility of ensuring that the action of the injected fluid was confined to the desired spot, the experiments led to no definite conclusions.

Great aid, however, towards the solution of the problem was afforded by a case of carcinoma which came under the observation of the writers. The disease involved the left sinus pyriformis and had spread to the lateral wall of the pharynx. Sensation and movement of the larynx were normal. At the operation of partial resection of the pharynx and larynx the left superior laryngeal nerve was divided before its passage through the thyro-hyoid membrane. The result was that the left side of the larynx became completely insensitive, but showed no alteration in its movement, voluntary or involuntary. The authors consider that this result affords very strong confirmation of the opinion to which their examination of patients with recurrent paralysis has led them, namely, that the recurrent laryngeal nerve contains no sensory fibres.

Thomas Guthrie.

NOSE.

Levinger (Münich).—*Pneumocele of the Frontal Sinus.* “Arch. für Laryngol.,” vol. xix, Part III.

Hajek and Warren have each reported a case of pneumocele in association with empyema of the frontal sinus, and these the author of this paper believes to be the only examples of the condition hitherto recorded. The following case, therefore, he considers of some interest. A man, aged thirty-six, underwent an operation after the method of Killian for empyema of the left frontal sinus of two years' standing. Healing after the operation was rapid and complete, but about six months later there appeared, on blowing the nose, a large bulging of the frontal sinus region, together with subcutaneous emphysema in the neighbourhood. The swelling and emphysema rapidly subsided, but recurred each time the nose was blown. The nasal cavity was free from pus. An operation was undertaken with the object of producing a firmer scar. What had before been the frontal sinus was again laid open and was found to be occupied by very loose cicatricial tissue. The walls were scraped with a sharp spoon and the inner angle was packed, the rest of the wound being sutured. The patient was warned not to blow his nose forcibly. Three months later there was no trace of bulging, and the cosmetic result was as good as after the first operation.

At the original operation Killian's mucous membrane flap was employed, and thereby the growth of granulations in the region of the fronto-nasal duct was greatly limited. The writer regards it as possible that the resulting weakness of the scar may have been responsible for the later trouble.

Thomas Guthrie.

Denker, A. (Erlangen).—*On the Operative Treatment of Malignant Nasal Growths.* “Arch. für Laryngol.,” vol. xix, Part III.

The author of this paper reports two cases of malignant endo-nasal growth, treated by an operation which he has recently devised for disease

of this nature. The method consists essentially in a further extension of the radical operation which he employs for chronic empyema of the antrum. Exposure of the canine fossa is effected by an incision through the mucous membrane and periosteum at the reflection from the cheek to the gum, and this is followed by a somewhat extensive removal of the facial wall of the antrum. The entire mesial wall is then taken away, and free access is thus obtained to the ethmoid cells and the sphenoidal sinus. After removal of the growth the oral wound is closed and subsequent treatment is conducted through the nose.

The first of the two cases was one of malignant endothelioma. The growth was extensive and had produced prominence of the whole left cheek with a fluctuating swelling beneath the inner canthus of the left eye. The hard palate was bulged downwards, and the entire left nasal cavity was filled with growth. At the operation the tumour was found to have arisen from the middle ethmoid cells and to have caused very extensive destruction. A small portion of the dura mater of the anterior fossa, immediately in front of the optic chiasma, was exposed. Recovery was rapid and complete, and no recurrence had taken place seven months after the operation. The microscopic appearances of the growth were those of an endothelioma.

The second case was one of medullary carcinoma. The tumour filled the whole of the right nasal cavity. The facial wall of the antrum was reduced to the thinness of paper and a part of the mesial wall had been destroyed, as had also the bony and a portion of the cartilaginous septum. The growth arose from the posterior ethmoidal region. During the removal of the tumour masses from the roof of the nasal cavity the dura mater of the anterior fossa was torn to an extent of 1 cm. The disease seemed to have been completely extirpated, but death from meningitis took place thirty-six hours after the operation.

The author compares his operation with those which involve skin incisions. He claims that with his method the risk of aspiration pneumonia is diminished and all disfigurement is avoided. The method has also been successfully employed by Professor Manasse, of Strassburg, in two cases of endothelioma.

Thomas Guthrie.

NASO-PHARYNX.

Morse, J. L.—*Diseases of the Naso-pharynx in Infancy.* “Boston Med. and Surg. Journ.,” April 18, 1907.

The author's experience leads him to believe that these maladies and the frequency of their occurrence are not appreciated by the general practitioner, that they are often entirely overlooked or improperly treated. The anatomy of the region is shortly recapitulated, and the following conditions are then discussed: acute rhinitis, diphtheritic rhinitis, adenoids, pharyngitis, retro-pharyngeal abscess, and otitis media. The paper is one for general practitioners rather than specialists, and the advice it contains is sound.

Macleod Yearsley.

ACCESSORY SINUSES.

Vernieuwe (Ghent).—*A Contribution to the Study of Closed Ethmoidal Sinusitis.* “La Presse Oto-laryngologique Belge,” June, 1907.

The author's observations are based upon the records of two cases. In the first the accumulation of pus in the ethmoidal cells was accom-

panied by exophthalmos, vertigo, and frontal headache. A free intra-nasal opening of the ethmoidal cells led to recovery. It was supposed that an ethmoidal mucocele had passed on to suppuration. In the second case an abscess pointed externally at the root of the nose, and a sequestrum consisting of part of the ethmoid was removed by external operation.

The author insists on the importance of speedy intervention in all cases where proptosis has occurred; he quotes a case recorded by Knapp where blindness from damage to the optic nerve supervened on the fourth day after the appearance of exophthalmos.

Chichele Nourse.

EAR.

Kishi, K. (Formosa).—*Otitic Dyspepsia in Infants.* “Archiv. f. Ohrenheilk.” Bd. 70, Heft 1 and 2, p. 1.

The author reports several cases of purulent otitis media in infants in whom the disease was associated with digestive disturbances, flatulence, diarrhoea, emaciation, which ceased when the ear-disease was cured. The following is a brief summary of three of the cases:

(1) Child, aged ten months, breast-fed. Several days' general depression in health with some fever (102·4° F.), and convulsions. When admitted under Kishi's care was suffering from pyrexia, with tympanites, diarrhoea, and enlargement of liver. After six weeks' treatment the ears were examined. Both membranes were found to be bulging; the left was congested but not the right. In the naso-pharynx adenoids were present. Both membranes were incised. From the right came much muco-pus, less from the left. Next day the child was brighter, the diarrhoea was less, and the ears were freely discharging. Five days after the relief to the pent-up pus in the tympana the diarrhoea entirely ceased, and in a month the discharge from the ears dried up also.

(2) Child, aged nine months, fed on cow's milk. A sufferer from bronchitis; formerly constipated; it had been suffering from diarrhoea for several weeks before Kishi first saw it. There was some loss of weight. The stools were very liquid, thin, and green. Temperature normal. On examining the ears both tympanic membranes were found to be thickened, opaque, and bulging. The deeper parts of the external meatus were congested, but the membranes themselves were not reddened. The naso-pharyngeal mucous membrane was swollen and oedematous, and the tonsils were enlarged. Double paracentesis was performed; from the left ear thick stinking pus was liberated, from the right only blood. In spite of the relief thus afforded the diarrhoea continued unabated, and as the temperature now ran about 100·4° F. a typical Schwartz was performed upon the left mastoid, from which emerged at the operation a great quantity of thick muco-pus. In two days the diarrhoea had ceased, and the temperature had fallen to normal.

(3) Child, aged nine months, breast-fed. After an illness lasting two months and consequent upon measles, Kishi found on examination that, in addition to severe diarrhoea with emaciation, the child was suffering from middle-ear suppuration. The stools numbered twelve to fifteen a day, and there was tenderness on pressure over the whole abdomen. The temperature ran between 100° and 101·5° F. Both tympanic membranes were bulging, but neither showed any congestion. On paracentesis much pus was obtained from both. After a preliminary improvement in

the condition of the patient following the operation the symptoms again became severe, and Kishi was led to repeat the paracentesis on the left membrane. No benefit resulted, however, and the radical mastoid operation was then performed. Five days later the diarrhoea had ceased, the temperature had fallen to normal, and recovery followed.

In commenting upon his experience Kishi draws attention to the circumstance that in these cases no reddening of the tympanic membrane was present. He attributes the diarrhoea to the passage of pus into the alimentary canal by way of the Eustachian tubes. A toxæmic diarrhoea is a frequent incident in all forms of septicæmia, just as frequently, perhaps, in cases where pus cannot obtain an entrance to the alimentary tract as in cases where such an entrance is likely. At the same time this criticism does not, of course, invalidate the lesson of cases such as these, which is, to examine the ears of infants with the utmost precision as a matter of course, regardless of the apparent drift of the symptoms.

Dan McKenzie.

REVIEWS.

Some Points in the Surgical Anatomy of the Temporal Bone from Birth to Adult Life. By ARTHUR CHEATLE, F.R.C.S., Aural Surgeon to King's College Hospital and to King Edward VII's Hospital for Officers. London : J. and A. Churchill, 1907.

When we consider the issues at stake in the treatment of disease in the temporal bone we must admit that it is impossible to overrate the importance of a complete and accurate knowledge of the anatomy of this bone in its typical and atypical forms. Those who have had much experience of operation on this part of the human body are familiar with the variability of the structure of the contained cavities, and have been forced to recognise the occurrence of aberrant forms through the disappointments in result dependent on their existence. The writer of this review has in his mind a case of comparatively recent date in which after what appeared to be a complete operation pus still welled up from the depths of the upper part of the attic. This is explainable by the observation on page 83 that "a recess or cell is occasionally seen in front of the head of the malleus and above the canal for the tensor tympani. The facial nerve lies against the inner wall." It is also well known that the temporal bone varies according to a somewhat regular scheme from one period of life to another, and according to the plan of this work these evolutionary changes are placed vividly before the reader. The range of inconstancy is also uncompromisingly displayed in the light of the actual examination of a large number of temporal bones. Mr. Cheatle forewarns us as to the atypical conditions we ought to be prepared to meet, and thereby puts us into a better position for dealing with them as they occur. We can never look at the temporal bone from too many points of view, and Mr. Cheatle, studying it as a practical surgeon, turns it upside down, and we may say inside out, so as to leave no nook or cranny unexplored. Among other points which seem to have been less strongly dwelt on by others, we may note on the under surface of the tegmen "a very distinct ridge running from before

backwards, dividing the roof into an external and an internal part" (p. 6); the frequent occurrence of the petrous cell, "a large cell lined with compact bone below and internal to the cancellous mass, just behind the descending part of the facial nerve, which, indeed, sometimes runs through the cell before emerging at the stylo-mastoid foramen" (p. 21); the remains of the petro-squamosal sinus, which in foetal life passes "along the roof of the antrum and middle ear in the course of the petro-squamous suture and emerging at an opening in front of the meatus" (p. 113). The anatomy of the labyrinth, from the surgical standpoint, is fully detailed, and the important relations of its several parts are interestingly exposed in the enumeration of the structures endangered, and, therefore, to be avoided during operations upon them (pp. 29-37). This very "objective" contribution to our knowledge of the temporal bone will not disappoint any reader who can appreciate an original appeal to Nature at first hand, as distinguished from a second-hand *réchauffé* of observations and traditions derived from other writers.

The British Sanatoria Annual, with numerous illustrations, 1907-8.
John Bale, Sons & Danielsson, Ltd.

This annual should be at the elbow of everyone who is likely to be called upon to advise as to the choice of a sanatorium for a consumptive patient. Its contents make a list of thirty-eight private sanatoria and forty-three which are free or that take patients at reduced fees, or on special terms or conditions. The latter are fairly distributed over the United Kingdom, but the former chiefly in the southern half of England and in various parts of Scotland, two, however, being in Ireland. The terms are plainly set forth—a point of great importance, and the main characteristics of the sanatoria are briefly described. It is interesting to see how many institutions are available for the reception, treatment, and instruction of consumptives without ravelling far from home. This book will be extremely useful in making them known both to the medical and lay public.

BOOKS RECEIVED.

Cruet, Dr. *Maladies de la Bouche*. With a preface by Professor LANNELONGUE. Second Edition. Paris: Masson et Cie. 1907.

Manuel des Maladies du Tube Digestif. Vol. I: Bouche, Pharynx, Œsophage, Estomac, by Drs. PAISSEAU, RATHERY, and CH. ROUX, with figures in the text. Paris: Masson et Cie. 1907. Price 14 francs.

NOTICE.

FRESH arrangements have been made to ensure the punctual issue of this Journal, both in the interests of readers and advertisers. Manuscripts forwarded to the editors will receive punctual attention.

THE

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

ROYAL SOCIETY OF MEDICINE.

OTOLOGICAL AND LARYNGOLOGICAL SECTIONS.

AMONG the most interesting events of the year has been the amalgamation of the majority of the various special societies into the Royal Society of Medicine, the scheme of carrying out of which has involved much delicate organisation on the part of some of our most distinguished representatives in all departments of medicine. The Laryngological Society of London, after a prosperous career of a number of years, and the British Laryngological, Rhinological, and Otological Association, which has been in full activity for still longer, acquiesced at an early stage of the negotiations in the proposal that they should merge into the Society, and we are pleased to say that although late in the day, the Otological Society of the United Kingdom, which during its short life has developed into an exceptionally powerful body, has finally decided to accept integration. We conceive the result to be the most desirable possible. It has been accomplished with the very minimum of friction and to the satisfaction of all concerned. The preliminary meetings of these sections have already taken place, the main business being the revision and adoption of the rules, and the election of office bearers.

Of the former we have little to say, except that the interest of patients who are brought before the societies have been studied, inasmuch as the clinical examination is to be confined to the actual

members of the section, who are necessarily so far experts in the special modes of examination that the utmost delicacy may be relied upon. As admission to the meetings is open to all members of the Society of Medicine the necessity of this reservation is very obvious, and it is gratifying to find that the General Council of the Society has seen fit to sanction this very reasonable reservation.

It may be added that all candidates for admission to either of the sections have to pass the test of the ballot at the hands of the existing members of that section, the conditions for eligibility for such membership being practically the same as those hitherto in vogue in the special societies.

The lists of officers include representatives of the three special societies, and we have no doubt that they will at once receive the confidence of existing and prospective members.

Officers of the Otological Section.—*President* : Peter McBride, M.D., F.R.S.Ed. (Edinburgh). *Vice-Presidents* : C. A. Ballance, F.R.C.S. (London) ; A. H. Cheatle, F.R.C.S. (London) ; J. Dundas Grant, M.D., F.R.C.S. (London) ; R. H. Woods, M.D.(T.C.D.) (Dublin). *Honorary Secretaries* : W. H. Kelson, M.D., F.R.C.S. (London) ; Hunter F. Tod, M.A., M.B., B.C., F.R.C.S. (London). *Members of Council* : J. Walton Browne, M.D. (Belfast) ; A. E. Cumberbatch, F.R.C.S. (London) ; A. Brown Kelly, C.M.Glas. (Glasgow) ; Edward Law, M.D. (London) ; W. Milligan, M.D. (Manchester) ; W. J. Chichele Nourse, F.R.C.S.Ed. (London) ; W. Permewan, M.D., F.R.C.S. (Liverpool) ; E. B. Waggett, M.B. (London). *Representative on Library Committee* : L. A. Lawrence, F.R.C.S. (London). *Representative on Editorial Committee* : W. Jobson Horne, M.D. (London).

Officers of the Laryngological Section.—*President* : J. Barry Ball, M.D. (London). *Vice-Presidents* : M. P. Mayo Collier, M.S. (London) ; H. Betham Robinson, M.S. (London) ; P. Watson Williams, M.D. (Bristol) ; R. H. Woods, B.Ch. (Dublin). *Secretaries* : W. Jobson Horne, M.D. (London) ; Harold Barwell, M.B. (London). *Members of Council* : H. J. Davis, M.B. ; J. Dundas Grant, M.D. (London) ; Arthur Hutchison, M.B. (Brighton) ; W. Stuart-Low (London) ; Chichele Nourse (London) ; Sir Felix Semon, K.C.V.O., M.D. (London) ; Charters Symonds, M.S. ; Atwood Thorne, M.B. *Representative on the Library Committee* : StClair Thomson, M.D. (London). *Representative on the Editorial Committee* : Harold Barwell, M.B.

POST-GRADUATE TEACHING IN RHINOLOGY, LARYNGOLOGY, AND OTOLOGY.

POST-GRADUATE teaching has been undergoing steady development in London of late years; the special hospitals have enlarged the scope and improved the organisation and facilities for teaching these subjects and adapted it to the requirements of post-graduates. At the same time, the general hospitals in most instances have improved their special departments in this direction and have appointed to take charge of them a number of specialists of known reputation, instead of placing these subjects in the hands of the juniors of the staff, as was formerly the case, whose interest in those subjects was apt to fade on their appointment to the full staff being assured. We need hardly say that to this rule there were some very distinguished exceptions. There is ample provision in London for the acquisition of these special subjects, both during the student career and during the post-graduate stage of acquiring knowledge. We should be the last to decry the advantages to be derived from the study in foreign hospitals, to which our specialities owe so much in their development, although we may fairly say that a very brilliant share in the initiation of the scientific study of these subjects is attributable to the personal enterprise and energy of such original workers as Toynbee, Wilde, Gibbs, Mackenzie, and many others no less distinguished. We have to-day among us workers who are doing really good original work.

It is with a certain amount of pride that we call attention to the facilities for teaching in these branches afforded in our metropolitan and provincial hospitals, and for the guidance of those who may wish to avail themselves of these we append a summary of the arrangements made at the various "special" centres to meet their requirements.

HOSPITAL FOR DISEASES OF THE THROAT, GOLDEN SQUARE, LONDON, W.

Clinical instruction.—Clinical instruction in the diagnosis and treatment of disease is given daily in the out-patient department from 2.30 to 5 p.m., and also on Tuesdays and Fridays from 6.30 to 9 p.m., and on Mondays at 9.30 a.m. Major operations are performed on Tuesday, Wednesday, Thursday, Friday, and Saturday mornings. Minor operations are performed daily (Mondays excepted) at 9.30 a.m.

Practitioners and medical students are admitted to the practice of the hospital at a fee of five guineas for three months, seven guineas for six months, or ten guineas for perpetual studentship. Each course may commence at any date. Special terms are granted to medical men in actual practice who can only attend the hospital once or twice weekly.

From amongst the students junior clinical assistants are selected, whose duty it is to assist the member of the staff to whom they are appointed. Students are also eligible for the senior clinical assistantships (four), on whom considerable responsibility falls.

The hospital contains forty beds for in-patients. There is an annual out-patient attendance of nearly 50,000.

Staff (out-patients).—J. W. Bond, M.D., B.S.Lond., Wednesday, 2.30 p.m.; Charles A. Parker, F.R.C.S.Edin., Tuesday and Friday, 2.30 p.m.; H. W. Fitzgerald Powell, M.D., F.R.C.S.Edin., Monday, 2 p.m.; Charles J. Heath, F.R.C.S., Thursday, 2 p.m.; Frank Rose, F.R.C.S., Tuesday, 6.30 p.m., and Saturday, 2 p.m.; T. Jefferson Faulder, F.R.C.S., Monday, 9 a.m., and Friday, 6.30 p.m.; W. H. Dolamore, M.R.C.S., L.D.S.R.C.S. (Dental Surgeon), Thursday 9.30 a.m.

Lectures.—Two courses of about sixteen lectures each will be given during the winter session on Mondays and Thursdays at 5.30 p.m. The first will be on Diseases of the Nose and Naso-Pharynx, and will commence on October 14, 1907. The second will be on Diseases of the Ear, and will commence on January 13, 1908. A syllabus of these lectures can be obtained on application to the secretary of the hospital. They are free to medical men and students on presentation of their cards.

CENTRAL LONDON THROAT AND EAR HOSPITAL, KING'S CROSS.

Post-graduate teaching in this hospital consists of two divisions: (1) Daily instruction by the surgeons at their respective *cliniques*, and (2) practical demonstrations of selected cases twice weekly.

The former includes an in-patient department of twenty-two beds, with its newly-erected wards and operating theatre. The latter is arranged in short courses of about six weeks' duration, embracing the whole field of diseases treated at the hospital, including their anatomy and pathology. They may be commenced at any date. Every personal assistance is afforded in case-taking and examinations of patients by all the members of the staff, while

the pathologist gives daily instruction in examination of discharges and tissues in the fully-equipped laboratory.

Surgeons.—J. Dundas Grant, M.A., M.D., F.R.C.S., attending Wednesday, at 2.30 p.m. : Percy Jakins, M.D., on Monday, at 2.30 p.m. ; Chichele Nourse, F.R.C.S.E., on Tuesday, at 5.30 p.m. ; P. H. Abercrombie, M.D., on Thursday, at 2.30 p.m.

Assistant Surgeons.—W. Stuart-Low, F.R.C.S., attending Saturday, at 2.30 p.m. ; Andrew Wylie, M.D., on Friday, at 5.30 p.m. ; James Atkinson, Esq., M.B., C.M., on Monday, at 2.30 p.m. ; Dan McKenzie, Esq., M.D., on Wednesday.

Pathologist.—Wyatt Wingrave, M.D., attending daily, at 3 p.m.

Bacteriologist.—St. George Reid, M.R.C.S., Monday and Thursday, at 4 p.m.

Anæsthetists.—W. H. George, M.R.C.S., L.R.C.P., Wednesday and Friday, at 2 p.m. ; Beresford Kingsford, M.D., Friday, at 9 a.m., Thursday, at 2 p.m. ; Lauzon-Brown, L.R.C.P., L.R.C.S., Tuesday, at 2 p.m., Thursday, at 9 a.m. ; John McKeith, M.B., C.M., Tuesday and Wednesday, at 9 a.m.

Dental Surgeon.—Whishaw Wallis, L.D.S.R.C.S., Tuesday, at 4 p.m.

Fees.—Clinical assistants, three months, three guineas; six months, five guineas. Course of practical teaching (six weeks), with daily attendance at the out-patient cliniques, two guineas.

Time-table.—Out-patients: Monday, Wednesday, Thursday, and Saturday, at 2 p.m. ; Tuesday and Friday, at 5 p.m.

Operations.—In-patients: Tuesday, Wednesday, Thursday, and Friday, at 2 p.m. Out-patients: Tuesday, Wednesday, Thursday, and Friday, at 9 a.m.

Practical Demonstration.—Tuesday and Friday, at 3.45 p.m.

THE METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL (FOUNDED 1838).
GRAFTON STREET, TOTTENHAM COURT ROAD, LONDON, W.

Facilities for clinical work are afforded to medical practitioners and senior students ; fee for one month one guinea, for three months two guineas. Practical demonstrations are given daily, at 2.30 p.m., in the manipulation of instruments used in the diagnosis and treatment of diseases of the ear, nose and throat. Special courses of instruction are given in pathology and surgical treatment ; each course may commence at any date. Clinical assistants are appointed, and have responsible duties. Further particulars may be obtained from the honorary secretary of the medical committee.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, CHENIES STREET,
GOWER STREET, LONDON, W.C.

This institution, which is centrally situated in Chenies Street, Gower Street, affords exceptional facilities to medical practitioners desirous of making themselves conversant with the special technique of ear, nose, and throat work. Sessions of practical classes in these subjects of six weeks' duration are held four times yearly, and a special vacation course of three weeks in September. Each course consists of six demonstrations of two hours' duration. These are essentially practical, the first hour being usually devoted to a lecture and instruction in special methods of manipulating such instruments as the laryngoscope, post-nasal mirror, Eustachian catheter, nasal specula, snares, etc., and the remainder of the time occupied with the examination of patients who show conditions illustrative of the diseases which have been treated of in the lecture. The vacation session of practical classes will commence on Monday, September 9, and terminate on Friday, September 27, and the Christmas session on Monday, November 4, terminating Friday, December 13. The days and hours on which the classes meet are as follow :

Time-table of Vacation Session.—Practical Otology (J. Dundas Grant and W. Stuart-Low) : Monday, 5 p.m.; Tuesday, 9 a.m. Practical Laryngology (W. Jobson Horne) : Wednesday, 5 p.m.; Thursday, 9.30 a.m.

Christmas Session.—Practical Otology, Monday, 5—7 p.m. Practical Laryngology, Wednesday, 5—7 p.m.

Gentlemen desirous of attending either of these classes are requested to send in their names to the Medical Superintendent, 22, Chenies Street, Gower Street, W.C., as soon as possible.

LONDON SCHOOL OF TROPICAL MEDICINE, SEAMEN'S HOSPITAL,
GREENWICH.

At this Hospital the clinic in laryngology and otology is held by Mr. Laurie Lawrence, F.R.C.S., every Monday from 11 to 1. Practical demonstrations on selected cases are given every Monday afternoon at 4 p.m., by StClair Thomson, M.D., F.R.C.S. Practical demonstrations of operations or of surgical anatomy are frequently given, and the number of cadavers allow the carrying out of operations on the dead body.

WEST LONDON POSTGRADUATE COLLEGE.

At this institution diseases of the throat, nose, and ear are under the care of Dr. J. B. Ball, Physician, Dr. H. J. Davis, Assistant Physician.

Out-patients are seen on Tuesdays and Fridays at 2.15 p.m., and on Wednesdays and Saturdays at 10 a.m.

Operations are performed on Wednesdays and Saturdays at 10 a.m., and on Tuesday and Friday afternoons at 4.30 p.m.

Special classes, not to exceed ten members, are held at short intervals. The class meets on Wednesdays and Saturdays at 11 a.m., and consists of six meetings. The following work is gone through :

(1) Methods of illumination.—The forehead reflector.—Examination of the pharynx and larynx.—The laryngeal mirror.—Method of making a laryngoscopic examination.—Difficulties of laryngoscopy.

(2) Examination of the ear.—Aural specula.—Method of inspecting the ear.—Testing the hearing by air conduction, and bone conduction.—Testing the mobility of the drum membrane.—Siegle's speculum.—Inflation of the middle ear.—Catheterisation of the Eustachian tube.

(3) Examination of the nose.—Nasal specula.—Anterior rhinoscopy.—The rhinoscopic mirror.—Method of making a posterior rhinoscopic examination.

(4) Description of the parts seen in the laryngoscopic image.—Some points in the anatomy of the larynx.

(5) Description of the parts seen by anterior and posterior rhinoscopy.—Some points in the anatomy of the nose.

(6) Description of the parts seen in inspection of the ear.—Some points in the anatomy of the ear.—Furunculosis.—Perforation.—Otorrhœa.—Treatment.

ROYAL EAR HOSPITAL.

Clinics are held every afternoon at 2, and on Monday and Thursday evenings at 6. Operations on Wednesdays and Thursdays at 2 p.m. A special course of lectures will be held during the winter session, particulars of which may be obtained from the Hon. Sec. to the Medical Board, Royal Ear Hospital, Dean Street, Soho.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, TOTTENHAM, N.

In the Prince of Wales's General Hospital instruction in diseases of the throat, nose, and ear is given each Monday by Mr. H. W. Carson, at 2.30; and operations are performed on Thursdays, at 4.30. In addition, a vacation course is held from September 9th to September 20th inclusive.

During this course Mr. Carson will give classes: September 11th, 11 a.m., demonstration of methods of examination of throat and ear cases; September 9th and 16th, 3.30 p.m., demonstration of selected throat and ear cases.

On Monday, September 16th, at 12 noon, Mr. J. Howell Evans will demonstrate the methods (Killian's) for laryngoscopy, bronchoscopy, and oesophagoscopy by the latest apparatus.

At any time special classes can be arranged for.

We hope in our next issue to give particulars as to the "special" departments of the medical schools attached to the various general hospitals.

EDUCATIONAL TREATMENT OF THE DEAF IN ALL THE STAGES FROM IMPAIRED HEARING TO THE TOTALLY DEAF.¹

BY JAMES KERR LOVE, M.D.

IN looking back over the history of the education of the deaf the dawn of two great facts associated with two great figures is easily distinguished. The first fact is that deafness in a child is no necessary bar to the acquisition of speech, and the demonstration of the fact was made by the Spanish monk Ponce de Leon. His pupils were the picked children of the wealthy families of Spain, and his results, so far as they are recorded, were brilliant. The modern representative of this pioneer—the oral teachers of individual scholars, or of the very small classes of the well-to-do—produce as good results as Ponce de Leon; but the figure of the Spanish monk first teaching speech away back in the middle of the sixteenth century must ever remain a grand and striking one.

The second fact is associated with the Abbé de l'Epée. The figure of this great single-minded man spending not only his time but his fortune in showing that the average unpicked, unselected deaf child could be taught language, and all that the use of language involves, must, in spite of the change in his method, be held as one of the most striking in the history of education. De Leon

¹ A paper read at the Second International Congress on School Hygiene.

and de l'Epée are separated by 200 years, the latter having flourished about 1750. De l'Epée's ultimate methods differed so radically from that of de Leon that the establishment of two schools and a war of methods was likely, and the teaching of Heinicke in Germany made this war inevitable.

It is not necessary for my argument that I trace the history of the 150 years from de l'Epée to our own time. It is the history of a war as inevitable as any in human affairs can well be—a war which has never ceased, which is still going on, and which could not have been settled during any part of the period I have spoken of. There were two factors awanting during all this long period which made the termination of the war of methods impossible. The first was the absence of the compulsory education of all deaf children, and the second was the absence of any clinical study of the deaf child. Until education was made compulsory the clinical study must have been one-sided. The clinical material was picked, and, therefore, not representative, and the conclusions of the observer would have been false in spite of himself.

But the clinical observer has never seriously tackled the study of the deaf child—rather to his discredit, I think. There is, however, a great convenience about this neglect of the deaf child by the doctors—that we are not hampered by a set of false conclusions which must be got rid of before the subject proper is attacked. Not so with the teacher of the deaf. Zealons, enthusiastic, cock-sure, the teacher praised his results and condemned his neighbour's, whilst all the time the disputants were not talking about the same subject. Their classes were not representative, they were picked, not so often by the teachers as for them, and the conclusions they drew were necessarily antagonistic. But the great net of compulsory education has swept into the schools the *poor* deaf mute, who was till recently left out, and the whole problem is now before the teacher and the clinical observer, too.

Ragged, underfed, badly-housed children, who were never within the walls of a school, are now sent into the institutions. Scrofulous, syphilitic, half blind, defective deaf children, who were thought hardly worth keeping alive, much less worth educating, must now go to school, even if they be driven to it in a municipal carriage or be led to and fro by a municipal nurse. There is no selection now in the great institutions. The whole clinical and educational problem is there for solution, and I cannot imagine modern science failing to solve this problem. And although the solution can never be associated with great figures like Ponce de Leon and de l'Epée, but

rather with a great movement in which no one individuality will be recognisable, it will be as epoch-making as those associated with the great Spaniard and Frenchman.

This third epoch-making step in the education of the deaf will be "the scientific classification of the deaf child for educational purposes." It is primarily—indeed, it is entirely—a clinical question. After the classification has been made, the deaf child may be safely left to the teacher. It is part of a larger question. Recently one of the largest School Boards in Scotland¹ appointed ten medical officers, whose duties are the medical inspection and examination of schools and school-children. These gentlemen have not yet begun their work, but I have before me a summary of their duties. They are described under fifteen heads, eight of which refer to the examination of the physical and mental condition of the children, the examination of special organs, the provision and examination of special schools for defectives, the instruction of the teachers by lecture and demonstration in recognising ailments and defects, etc. In the face of a movement like this the deaf child cannot escape study even were no separate attempt being made to understand him.

And if I need further argument for the reality of an epoch-making change in the education of the deaf, I point to this great International Congress, with one of its sections devoted to the deaf and the blind child.

I propose to ask your attention shortly to two points :

- (1) How is the deaf child to be classified ?
- (2) Where is he to be taught ?

In answering the first of these questions I shall make some contribution to the settlement of the war of methods. In answering the second I shall contrast the day school with the institution. I do not know two questions of greater interest to those who manage the education of the deaf.

It will save my time in answering the first question if you will let me refer to a series of papers which I recently wrote as a Research under the auspices of the "Scottish Universities Carnegie Trust," and which appeared in the *Glasgow Medical Journal*.² These have been copied into the *Teacher of the Deaf* in this country; they are appearing in the *American Association Review*, and they are being translated, and will appear, in whole or in part, in some Continental journals. A hundred compulsorily-taught children were examined without selection, chiefly with

¹ The School Board of Govan.

² *Glasgow Medical Journal*, November, 1906, and January, 1907.

regard to their remaining hearing and speech, but also with regard to their general intelligence, their eyesight, the condition of the nose and throat, etc., and all the clinical facts were considered in the light of the personal and family history of each child.

The most important questions raised in the clinical examination of deaf-mute children are these :

- (1) When did the child become deaf ?
- (2) How much hearing has he left ?

You cannot restore the child's hearing, but you can salvage what remains, and build speech thereon. If there be no hearing at all, but some unforgotten speech, you can save that, and build more speech on it.

In answer to the first question, you will find in all large schools for the deaf 5 to 10 per cent. of children who have lost their hearing at three or four up to nine or ten years of age, who have a good deal of speech left, but who have no hearing. These are the semi-mute. If you place them in a manual alphabet school, or in a combined school where speech is taught for only half an hour a day, they will lose their speech to a greater or less extent, and some of them will become quite dumb. If you look into the ears of these children you will often find the traces of the disease which has caused the deafness—scarlet fever, measles, etc.—in the form of a tympanic membrane almost all destroyed, or a discharge from the ear. They are represented in this chart by Cases 6 and 11, and Cases 25 to 30, which latter have been here drawn together for convenience ; but in Case 30 the deafness came on at six years from meningitis. The tympanic membranes are quite normal, but Case 30 is the only one in this group of semi-mutes where the speech is described as poor. I do not like acquired deafness due to meningitis, for the disease sometimes damages the intelligence of the child in addition to making him stone-deaf.

The answer to the second question—"How much hearing has the child left?"—defines for us a second group amongst the deaf—the semi-deaf. Now, with the exception of the semi-mute children I have been speaking about, hardly any deaf-mute child is totally deaf. But semi-deaf children hear easily, and after a little experience distinguish and repeat as speech,—vowels, consonants, or words which have been spoken distinctly into one or both ears. (The chart will show you how seldom deaf children are entirely devoid of hearing.) Unless, however, the hearing be within the speech-area, and be great enough in degree to enable the child to make out the human voice, as I have above described,

it will be of no use in teaching. Now, the speech-area of the scale is a very limited area. It extends through less than two octaves; indeed, speech as used in teaching, and including both men's and women's voices extends to little more than one octave. The voice as used in singing covers almost five octaves, and the human ear has a range of hearing for ten to twelve octaves. But islands of hearing outside the speech-area, however acute, are of no use in teaching, and, therefore, the human voice as used in speech, and as it may be used by every teacher in testing hearing, is the ultimate test for the discovery of these semi-deaf children. (You will see plenty of these useless-hearing islands on the chart.) The elaborate fork tests I have used, and which I have shown graphically here, are never necessary in teaching, although a more limited series of fork tests may with advantage be used. This point I shall return to shortly. But here I wish to repeat that semi-deaf children can nearly always be discovered by the teacher who uses his voice properly as a test. Now you cannot neglect the hearing of these semi-deaf children without doing them a grave injustice. They are nearly always the best scholars in the class. They exist in a large proportion in the higher than the lower classes of every large institution. In other words, their remaining hearing is of use to them even where the teacher takes no special notice of it. Further, they not only speak better than other deaf children, but their voices are pleasanter. I have found this in all countries. In Washington and in Rome, in London and Vienna, in Dresden and New York it is always the same. And in Munich and Vienna, where the hearing of the semi-deaf is most carefully cultivated, it is especially noticeable. Cases 30-33 represent the semi-deaf in the chart I show you. Now, in every country in the world you will find 15 to 20 per cent. of these semi-deaf children amongst the deaf-mutes of our institutions. Geographical position makes no difference. Along with the semi-mutes, with whom, for educational purposes, I propose to classify them, the semi-deaf form in every country about 25 per cent., or a fourth of the whole. I think these semi-mute and semi-deaf children should be taught orally. In their education no manual alphabet should be used, neither should any systematised sign-language be employed. I am not speaking of natural signs. The object in teaching these children should be to make them fit to use their voices in speech as the means of communicating with their fellows after they leave school. This may be done either in special day classes in the ordinary schools attended by hearing children, in special day

schools, or in oral residential schools. It cannot be done in schools where the silent or manual alphabet is used, nor can it be well done in the so-called combined schools. The semi-deaf in the chart are Cases 4, 12, 15, 31, 32, and 33.

At Nyborg, in Denmark, you see the semi-deaf separated and under oral training, as I would have him trained, and I quote from a letter of Dr. Forchhammer's, the headmaster, when I say :

"It may be said that almost all our former pupils use their speech as the essential means of communication with those around them, which statement is also corroborated through the answers in blanks which are filled up by the parochial clergyman in all towns outside Copenhagen, and returned to the deaf schools annually."

Now turn with me from these semi-deaf and semi-mute children, whom I shall for convenience call Class I, to the defective deaf child whom I shall put into Class II. Defectives occur amongst deaf-mutes just as amongst hearing children. They occur in greater number. We have about 15 per cent. of them in the Glasgow Institution. In Dresden they have about 20 per cent. Here in London they have over 10 per cent. The percentage will vary with the standard of mentality used as a test. The percentage is not very important so long as the fact is recognised. In London here they are gathered in a separate institution at Homerton, where they can be easily studied. I have referred to them at some length elsewhere.¹ The stigmata of degeneration are seen everywhere in the school—microcephalics, almost blind children, cases of congenital syphilis, undergrown and badly-developed children are common.

In the hearing schools of this country and elsewhere, these are just the children who are being separated from their fellows and put into separate classes and schools for defectives; and yet these are the children who in almost every school for the deaf in almost every country in the world are being taught alongside the semi-mute and semi-deaf, who are but little removed from the ordinary hearing child. If the defective hearing child requires separate treatment, the defective deaf child has a much greater claim to it. He will never make a good oral pupil. The acquisition of speech by defective deaf children is practically impossible. Their presence alongside the semi-deaf and semi-mute, or even the intelligent deaf child, of whom I am about to speak, hinders the latter and does no good to themselves. Further, the educational methods applicable to the two classes are different.

¹"The Study of the Deaf Child," *Glasgow Medical Journal*.

You will find instances of defective deaf children scattered all through my list of 100 children. Case 7 in the chart is a decided defective; Cases 16, 19, 20, and 21 are examples of backward, if not defective, children, whilst Cases 34, 38, 47, 59, 65, 66, 69, 82, 86, 88, 92, and 94 are examples from the larger list.

In these two classes I have accounted for about 40 per cent. of the deaf. I will assume that there are 60 per cent. left. These I propose to put into Class III., and to label as "the average deaf-mute." The average deaf-mute has no hearing for voice which can be turned to account. He does not show the stigmata of degeneration like the defective deaf-mute. You could not tell him from a hearing child by merely looking at him. He is a fairly intelligent child. He may be hypermetropic or myopic, or astigmatic, but all these eye defects can be pretty well corrected by proper glasses. He may be a mouth-breather, but not to much greater degree than the child of the hearing school. But his case has never been considered apart from the defective deaf-mute and the semi-deaf mute. And much of the muddle and misunderstanding attaching to the consideration of the education of the deaf and dumb would disappear if the average deaf-mute of my Class III. were first defined and then discussed by himself. I am convinced that the time is not far distant when it will be considered the inalienable right of the average deaf-mute to be taught by the oral method in the first place, and to be consigned to the silent or combined school only in the event of the experiment failing. A year, or at most two years, will suffice for the experiment. But I am also convinced that in Britain, under the present eight years' system of education, the result will be unsatisfactory in many of the cases. The success will be in direct proportion to the length of the school period. Were it lengthened to twelve years, so that the school period might cover the years of "forgetting and undoing," as the late Minister of Education has described the years of adolescence, from fourteen to eighteen or twenty, it would be almost always a success. And this extension of the educational period would be less costly for the State than the present system, for the deaf-mute would leave his school fully equipped for the work of his life.

In the classification I have attempted I have dealt with percentages. But these figures are of secondary importance. It is a principle I am trying to establish. The percentages seem fairly true for the children at present in the Glasgow institution, and they tally pretty well with those I had given me in the most advanced schools on both sides of the Atlantic. But all teachers of

the deaf know that the material sent them varies from year to year, and that since the introduction of the compulsory clause the children admitted to the institutions of large cities have degenerated in type. I have examined all the deaf children admitted to the Glasgow institution for nearly a quarter of a century, and have seen a good deal of the kind of variation I allude to. But however the percentages may vary, the principle that deaf children should be scientifically classified, and that the classes should be separately taught, each according to its special need, is unalterably and finally sound.

I was asked to speak to you to-day on the bearing of hearing and speech in the deaf on systems of education, but you must not think of the deaf child in this narrow light alone. By his presence in an institution his general health and his hygienic environment are secured, but his eyes and his throat need attention. Sixty per cent. of our deaf children in Glasgow have defective eyesight, and most of them should be fitted with eyeglasses. Thirty per cent. have such well-marked post-nasal adenoids that these should be removed both in the interests of their general health and of their speech.

I now take up, and that much more briefly, the question, "Where is the deaf child to be taught?"

Although I have visited a larger number of schools for the deaf than probably any other living medical man, I am not sufficiently acquainted with the social conditions present in each different country to suggest any general rule for the adoption of the day school as against the residential institution. But I am sufficiently acquainted with the city of Glasgow to deal with the problem as it is presented to us there.

Glasgow is a city of nearly a million inhabitants, and the institution there draws its 180 deaf children about equally from the city and the west and north of Scotland. Through the kindness of Mr. Welch, the senior teacher of the Glasgow institution, and of Mr. Wright, the officer of the School Board of Glasgow, I am able to present to you information on three points which suggest themselves in thinking of this question :

- (1) How many apartments are in the houses from which the children of the Glasgow institution are drawn ?
- (2) How many people occupy these houses ?
- (3) What is the nature of the accommodation in the homes of the children belonging to the Glasgow area proper ?

Mr. Wright has visited the home of every deaf child in Glasgow in the gathering of the facts for the answer to the third question.

Mr. Welch found, from inquiries amongst the children, that five of the Glasgow children had no home, that seventy-six had homes. In these seventy-six homes there were 168 apartments, with 524 inmates, inclusive of twelve lodgers. This gives an average of $2\frac{1}{3}$ apartments to each home of seven inmates, an average of about three inmates to each apartment, and of about five children to each family. As one of the apartments in such small houses is always the kitchen or cooking establishment, I need hardly point out that even after the institution has relieved the home of its deaf children there is dangerous overcrowding for those that are left. Mr. Wright visited seventy-eight homes; five of these he found excellent, seven good, twenty-eight fair, and thirty-eight, or about 50 per cent., wretched. In only twelve of these seventy-eight homes has child-life a reasonable chance of remaining healthy and pure. In thirty-eight no deaf or hearing child should be left. In Glasgow, till we solve the problem of the better housing of the people, the deaf child must be taught in a residential institution; unless, indeed, the School Board not only educate the deaf child, but board him out near the school.

I found day schools, or at least day scholars, in many Continental and American cities—in Vienna, Nyborg, Schleswig, and Boston; also in Birmingham, Leeds, and in London here. In Glasgow the residential school system produces the happiest results from the most unpromising material. Poor, underfed, rickety children become strong and healthy, and the death rate is extremely low. After a few years' residence the deaf children compare favourably in physique with the day scholars of the better-class districts of the city, and are head and shoulders above the day scholars in the hearing school of the poorer districts.¹ Such advantages could not be thrown away unless the teaching in the institutions were shown to be less successful than that in the day schools for the deaf, and not even then unless the poorer children were housed and fed by the educational authorities. In your English cities the housing conditions are better than they are in Glasgow. In Leeds, for instance, where Mr. Kirk, the head-master of the institution, knows every home from which deaf day scholars come, that gentleman does not think the social conditions are against the day-school system; indeed, there are none of his day scholars whom he would prefer to board out. In Birmingham, Miss Longwill, of the Day School, gives much the same opinion as Mr. Kirk. In London the County Council

¹ "Deaf Mutism: a Clinical and Pathological Study." MacLehose. 1906.

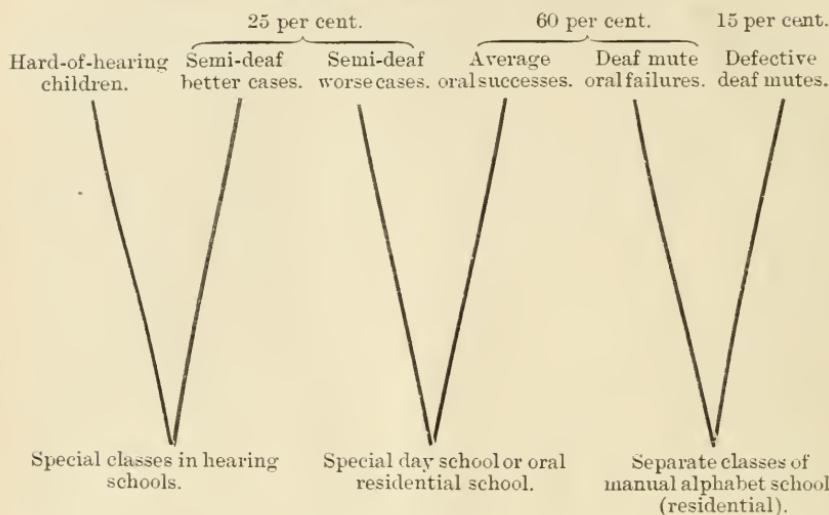
boards out about thirty of the 500 day scholars taught. But in Scotland we have the tenement system, by which sixteen to thirty families enter by one close or opening a four- or five-flatted building or block of one or two-roomed houses, and the same degree of poverty under this tenement system means a much worse social and hygienic environment than it does in England.

A classification of the deaf is not complete without some reference to the hard-of-hearing children attending the ordinary schools. There is no sharp line of demarcation between these and the semi-deaf. Deafness exists in every degree. But the merely hard-of-hearing may use the teaching of the hearing schools if a little special attention be given them, whereas at present there is no place for the semi-deaf but the schools for the deaf-dumb. I do not know the number of the hard-of-hearing in the ordinary schools. I do not think the class is a very large one, although I am sure that in the aggregate hard-of-hearing children are more numerous than all the deaf-dumb put together.¹ They are, therefore, worth providing for. In large centres they should be taught in special classes of the ordinary hearing schools, and it might be well to include with them in these classes the best cases amongst the semi-deaf. This, I think, is done in Berlin, where very few semi-deaf are found in the deaf-dumb institutions.

Every deaf child should, I think, attend the highest type of school from which he is likely to derive benefit. If this principle be carried out the hard-of-hearing should attend the day school for the hearing child, where special classes should be made for him; the semi-deaf child should attend the same class as the hard-of-hearing child, or if he fail there he should attend either a special oral day school or an oral residential school. But here, in the downward grade of hearing, a sharp line must be drawn. The average deaf-mute cannot benefit from any mere modification of the methods

¹ At least ten times as numerous. Since the above was written, Dr. Hackwell Stewart, of Hanley, kindly sends the following note: "I examine only those children who appear to have some physical cause for backwardness in school work. Based on my last completed round of visits, my estimate is that 1·16 per cent. of the 12,200 children in the Hanley Schools have hearing defective enough to be a drawback, but not bad enough to be sent to a school for the deaf." Mr. Jones, of the London Council, has made the following inquiry for the purposes of this paper. Choosing three schools in different parts of London with an aggregate attendance of 3300, he asked the head teachers to state the number whom they thought were backward on account of defective hearing, but not bad enough for removal to a school for the deaf, and the returns show that forty-nine, or about 1·5 per cent., of the children, came under this category of hardness of hearing. In Glasgow, therefore, there are about 1000 hard-of-hearing children in the elementary schools; in London about 5000.

SCHEME OF EDUCATION FOR CLASSIFIED DEAF.



used in hearing schools. He must either have a special day school or a residential institution. He should get a fair trial on the oral method, and if he fail he should go to a residential institution where manual alphabet-teaching may be freely used. These oral failures are not necessarily defectives, but there is no antagonism between the methods adapted for their training and those used in the case of the defective deaf, and along with the latter they form, happily, not a very large class. This class, however, requires the special care only possible in a well-appointed institution.

Britain is peculiarly the country where a scientific classification should be carried out. There is no other large country where all the deaf must attend school, and which at the same time is not committed to *one* system of education. In Germany only the oral system is recognised; in America there is no compulsory education. But here, and now, is the first opportunity of settling a war of methods which has lasted for centuries, and what is of far more importance, of doing what is right by the deaf child.

Case No.	Age of reported onset.	Assigned cause.	Deaf relatives.	REMANENTS OF HEARING.										Condition of M.T.	Hearing of speech.	Speech used.	Intonation.		
				C ₁₆	C ₈	C ₄	C ₂	C ₁	Speech area.	C ₃	C ₄	C ₅	C ₆						
1	Born deaf	—	—	Right ear	—	a	—	—	—	—	—	—	—	—	Intact	Hears voice	None	—	
2	Born deaf	—	2 brothers	Left ear	—	—	—	—	e ¹ ...e ²	e ³ ...e ⁴	e ⁵ ...e ⁶	e ⁷ ...e ⁸	e ⁹ ...e ¹⁰	e ¹¹ ...e ¹²	—	—	—	—	
3	1 year	—	—	D ₁ ...	D ₁ ...	B...	B...	B...	—	—	—	—	—	—	Intact	Hears voice	None	—	
4	Born deaf	—	3 brothers	deaf and dumb	—	—	—	—	—	—	—	—	—	—	—	Intact	Hears voice	Little	Fair.
5	Born deaf	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Intact	Hears voice	Little	Fair.
6	4 years	Fall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7	Born deaf	—	G ₂ ...G ₂ ...	D ₁ ...	G...	G...	G...	G...	—	—	—	—	—	—	—	Intact	Hears voice	—	—
8	Early	Tubercle, R facial palsy	—	A ₁ ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9	Born deaf	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Normal	Hears A	Articulates well	Good.
10	Born deaf	—	Measles	—	—	—	—	—	G...	—	—	—	—	—	—	Normal	No vowels	Semi-mute	Good.
11	4 years	—	—	—	—	—	—	—	B...	—	—	—	—	—	—	Gone	Distinguishes	good	Good.
12	1½ years	—	—	—	—	—	—	—	G...	—	—	—	—	—	—	Normal	A and O	Hears low voice	Good for low tones.
13	Born deaf	—	2 deaf brothers	—	A ₁ ...	G	a	e ²	—	—	—	—	—	—	—	Normal	—	—	—

REMANENTS OF HEARING.												Condition of M.T.	Hearing of speech.	Speech used.	Intonation.	
Age of reported onset.	Assigned cause.	Deaf relatives.	C ₁₆	C ₃₂	C ₆₄	C ₁₂₈	C ₂₅₆	C ₅₁₂	C ₁₀₂₄	C ₂₀₄₈	C ₄₀₉₆	C ₈₁₉₂	C ₁₆₃₈₄			
14	2 years	—	—	—	—	G...e	G...	—	—	—	—	—	—	R perfor., L normal	Vowels except E	Good.
15	2½ years	Fever	—	—	A ₁	—	—	—	—	—	—	—	—	A, O and P	Reading fair	Good.
16	Born deaf	—	2 others deaf	—	—	—	—	—	—	—	—	—	—	Nil	Fairly distinct	Fair.
17	Born deaf	—	1 cousin deaf	—	—	e...a	—	—	—	—	—	—	—	—	Poor.	Poor.
18	Born deaf	—	2 sisters deaf	—	—	—	—	—	—	—	—	—	—	—	High-pitched.	High-pitched.
19	Born deaf	—	2 sisters deaf	—	—	—	—	—	—	—	—	—	—	—	Poor.	Poor.
20	10 mos.	Menigitis	—	—	—	—	—	—	—	—	—	—	—	—	Squeaky.	Squeaky.
21	Born deaf	—	Brother and father deaf	—	—	—	—	—	—	—	—	—	—	—	Reading fair	Fair.
22	Born hearing	—	—	—	D ₁	—	—	—	—	—	—	—	—	—	Poor.	Poor.
23	3 years	Scarlet fever	—	—	D	—	—	—	—	—	—	—	—	—	Very fair.	Very fair.
24	Born	Sister deaf, cousin	—	—	—	—	—	—	—	—	—	—	—	—	Reading good	Very fair.

A STUDY OF THIRTY-SIX SUCCESSIVE CASES OF OPTIC NEURITIS. NASAL ACCESSORY SINUS DISEASE PRESENT TWENTY-SIX TIMES.

TREATMENT OF THE SINUSES FOLLOWED BY IMPROVEMENT OF THE OCULAR CONDITION IN FIFTEEN CASES, INCLUDING THEREIN THREE BILATERAL CASES RESTORED TO NORMAL.

BY HENRY MANNING FISH, M.D.,
Chicago.

CASE 1.—*Bilateral Retro-ocular Neuritis, Reduced Vision, due to Empyema of the Frontal Sinuses, following Influenza. Restoration of Vision to Normal by Drainage of the Sinuses.*

Miss X—, aged twenty-eight, referred by Dr. Brosnan, of New Orleans, was first seen November 28, 1904. She complained of severe frontal headaches, paroxysmal in character, occasional attacks of vertigo, photophobia and marked reduction in vision, counting fingers at $1\frac{1}{2}$ and 2 metres respectively. The lids and neighbouring parts, excursions, etc., were normal—no redness or oedema ever present. Each eye normal in external appearance, aside from a slight congestion; a few minute deposits on the posterior corneal layer, lower quadrant; fine vitreous haze, no striae; papillæ slightly oedematous, the borders visible; retinal vessels normal in appearance. The lesions in the media would not account for the marked reduction in the vision, hence a retro-ocular neuritis suspected. An attempt to take the visual fields failed owing to a lack of comprehension or attention on part of the patient, who was not overly bright; taken roughly by the hand, the field showed no scotomata. Patient under treatment by Dr. Brosnan for gonorrhœa. History of influenza a year or so ago, followed by occasional attacks of vertigo and frontal headache, paroxysmal in character. During the past month increase in both frequency and severity of the cephalgia, accompanied by a gradual reduction of vision, the visual loss being especially marked during the severe attacks of pain. After the latter ceased there was usually an improvement in the vision. During the past few days the attacks of pain had been very frequent, and the marked reduction of vision had persisted. The region of each frontal sinus was very sensitive to touch. In each nostril was an abundant purulent secretion coming from the middle meatus. The treatment in this case was directed solely toward ample drainage of the frontal sinuses—daily treatment, probing and syringing the cavities

with water by means of a silver cannula introduced into the fronto-nasal canals. The severity of the pain was relieved and the vision of each eye improved immediately; third day $\frac{15}{20}$, fifth day $\frac{15}{70}$. The condition continued to steadily improve; the keratitis punctata and vitreous haze cleared up at the end of a week; the tenth day the patient complained of no pain, and the vision equalled $\frac{10}{20}$ slowly, each eye, improving to $\frac{20}{30}$ a few days later. As the patient suffered no more pain she did not return, and, as is often the case with a practically clinical patient, the writer did not have the satisfaction of closely observing to the end this interesting case. She did send word later, however, that "the sight was all right."

CASE 2.—Bilateral Retro-ocular Neuritis, Reduced Vision, Weakness of the Interni, due to Frontal Sinusitis. Restoration to Normal after Treatment of the Sinuses. (Case published by Black, *New York Medical Journal*, June 2, 1906.)

E. T. R—, aged thirty-seven, consulted the writer (Black) August 24, 1905, complaining of blurring after short time of close use of his eyes. No headache, said vision in distance was good; was wearing weak prism base in either eye for two months, which had given relief at first. V. O. D. $\frac{6}{8}$, V. O. S. $\frac{6}{6}$. The phorometer, showed 3.5° exophoria at 6 m. and 16° exophoria at 30 cm., dot test: eyes out under cover; can only overcome prism 11° base out with light at 6 m. Thinking the case one of muscle insufficiency, directed him to report the next day to determine the insufficiency in the morning when the eyes were not tired.

August 25.—V. O. D. reduced to $\frac{6}{60}$. Visual field: form field good; red field contracted, and small relative central scotoma. No specific history could be elicited; passed a life insurance examination one year ago, had gonorrhœa many years ago. Takes an occasional drink, and once in a while has a little spree; is quite a steady smoker. The pupils react perfectly to light and accommodation. Ophthalmoscopic examination is negative.

August 26.—On examination of the nose, at the suggestion of Dr. Fish, on the right side I discovered a middle turbinate, especially the anterior portion of which was very much enlarged, turgid and boggy, also considerable hypertrophy of the inferior turbinate and some enlargement and bogginess of the middle. There was no discharge from either nostril. On further inquiry into the history it was found that a cold in the head was a quite frequent occurrence, and usually manifested itself by a fulness over the eyes and base

of nose and frontal headache. The engorged turbinates were shrunken with suprarenalin.

Patient was seen in consultation by the writer on August 27. Ocular condition unchanged. Fronto-nasal canal probed. Anterior part of right middle turbinate amputated.

August 28.—V. O. D. $\frac{6}{60}$, V. O. S. $\frac{6}{8}$. Visual field O. S. red, contracted, small relative scotomata.

August 29.—V. O. D. $\frac{6}{36}$, V. O. S. $\frac{6}{60}$.

August 30.—V. O. D. $\frac{6}{24}$, V. O. S. $\frac{6}{60}$.

"Throughout the entire case the ophthalmoscopic findings with reflected light were negative; with the electric ophthalmoscope, about the macular region in each eye were a number of groups of minute white spots, which seemed to shift position from day to day, and, as the vision became normal, disappeared entirely." The treatment by Black in this case, limited to the drainage of the sinuses, resulted in complete relief from all the ocular symptoms—namely, the retro-ocular neuritis with reduced vision, the white spots in the macular region, and the muscular involvement, both extrinsic and intrinsic.

CASE 3.—Bilateral Optic Neuritis and Muscular Involvement due to Polysinusitis. Restoration to Normal by Treatment of the Sinuses.

Robert B—, an American aged twenty, referred by Dr. Julia C. Strawn, was first seen on August 13, 1906. In May, 1903, he noticed the first trouble on the part of his eyes—photophobia, injection, burning sensation, and drowsiness on using them. He was treated for several weeks by an ophthalmologist who used drops, electricity, and steam for a conjunctivitis. As there was no improvement he then consulted another ophthalmologist, who, together with his associates, recognised an involvement of the fundus in each eye—"trouble in the retina and milky or hazy optic nerve," according to the statement of the patient. Visual disturbances were present, as at times he could not readily recognise a friend across the street. The ocular muscles were also involved, as the patient was given prisms and instructed how to exercise the muscles with the aid of a candle, etc. The usual treatment was undergone, but without improvement, and in August, 1903, he was sent to California, and while there the condition became worse, especially during the winter months—the eyes and lids injected, marked photophobia and inability to read or use the eyes, etc. The patient then returned to his ophthalmologist in Chicago, who found the condition of each eye to be much worse,

and in February he was again sent away, this time to Colorado. The eyes continued to trouble him, and, in addition, he suffered with severe headache, nervousness, and frequent attacks of vertigo, etc.

On again returning to his ophthalmologist the condition of the eyes was found to be the same, if not worse. He was told nothing more could be done, and a grave prognosis was given, although he was assured there was no danger of going blind immediately. He then consulted an eminent ophthalmologist in Milwaukee and remained under his care about two years—monthly visits. Prisms were ordered for constant use, various forms of treatment were instituted, an alkaline wash was given on account of his catarrh, but all of no use; the condition remained unchanged and a grave prognosis was again given. For more than three years this patient was unable to do any work, owing to a bilateral optic neuritis, which, however, caused no marked reduction in the vision. Nearly all this time he had to wear dark glasses continually, two pairs at once during the winter months. He was subject to occasional severe pain in the head and attacks of vertigo, and, furthermore, he had a long-standing catarrh which completely occluded first one and then the other nostril.

Present state.—August 11, 1906.—Occasional attacks of severe pain in the head that cannot be definitely located, frequent attacks of dizziness, very “nervous at times,” complete anosmia, no tenderness to pressure about the orbit. The eyes: outward appearance, excursions, lids, etc., normal; photophobia (dark glasses); media clear; each disc œdematosus, the borders obscured; no haemorrhages; vision not affected. Nasal examination: each nostril greatly congested, the lower turbinates so swollen as to be in apposition with the septum; patient is unable to force any air through one side. This condition alternates: first one, then the other nostril, will be occluded for days at a time, and occasionally both are completely closed. A plentiful secretion is continually present, clear as a rule, but at times yellowish.

The treatment was directed solely towards the establishment of drainage of the sinuses. It was found necessary to operate on the left side—amputation of half of the middle turbinate—but, as this did not relieve the condition, the ethmoidal labyrinth and sphenoidal sinus, shown at the time of the operation to be necrotic, were curetted.

All the symptoms—dizziness, headache, nervousness, photophobia, asthenopia, nasal stenosis, loss of the sense of smell, etc.—

were relieved. The œdema of the papillæ and in the nostrils disappeared, the heretofore enormous lower turbinates becoming normal in appearance. The dark glasses (-50 and -25 cylinders, ax. 90), worn constantly for so long, were discarded. Under atropine $+50$ and $+25$ cylinders, ax. 180° , for near, when needed, were ordered. When dismissed the patient was told that the right side might have to be operated later. In December he called to have the fundi examined "to see if they were still alright," and the papillæ were found to be normal. The patient related that he had recently had a bad cold in the head, with profuse nasal discharge, lasting for several days, and "I did not have the least trouble with my eyes." In January he returned to work and is still engaged (July) in an occupation requiring much close application.

CASE 4.—Bilateral Optic Neuritis; Marked Reduction in Vision due to Sinus Disease. Improvement of Vision in Each Eye, the Right Eye restored to Normal.

Dr. B—, aged forty, noticed, in September, 1906, failure of vision in each eye, especially the right one, which gradually increased, so that in November he had to give up his work. He consulted an ophthalmologist, who noted a neuro-retinitis haemorrhagica in the right eye and an atrophic condition of each optic nerve. The fundal lesion was pronounced albuminuric, although the urine was not examined. In December the patient could not read the headlines in a newspaper, and he then came to Chicago and consulted Dr. Suker, who found the vision reduced to $\frac{10}{200}$ in each eye owing to optic neuritis, the left disc being partially atrophic. Urine negative. Under strychnine the vision showed marked improvement and became nearly normal, though it was again somewhat reduced when the patient was referred to the writer, on December 27, for examination of the sinuses. He had suffered no severe headache—only an occasional dull pain or neuralgia in the orbito-temporal region. Catarrh was denied, but the left nostril was at times partially stopped up and the right would become occluded if the patient slept on the right side. Right nostril: upper nares visible, no congestion, no pathologic secretion even in the middle meatus, no necrosis determined with the probe—the condition presented a negative nasal finding. The left nostril was partially stenosed owing to a deflected septum, and the parts were somewhat congested. A day or two later a yellowish secretion was visible in the right middle meatus—mixed pus cocci

and pneumococci (Columbus Medical Laboratory). The patient was then in bed two days with what he called a "grippe cold": some fever, pains in the head, back, and other parts, and the vision was reduced— $\frac{2}{120}$ sixth day—but improving again in a few days later. During the week following the patient was not entirely well; he suffered occasional pains, lassitude, and was somewhat nervous; he was still on strychnine. The nostril, examined several times, showed no more yellowish secretion in the middle meatus.

The patient was told how frequently sinus disease had been found to be the cause of optic neuritis, and that a comparatively negative nasal finding did not exclude sinusitis. Being a physician, he knew the prognosis—unless the neuritis was arrested. Accordingly he readily consented to the treatment advised—curettage of the ethmoidal sinuses, right side.

Operation January 8. After a thorough cocainisation of the parts necrosis of the ethmoidal bone was felt with a probe.

The ethmoidal cells were curetted; no tampons were inserted. The following three or four days the patient was in bed with pain, fever (103°–102° F.), and the vision was again reduced in each eye. There was quite a little post-operative congestion; the parts were continually drained; considerable thick, yellowish secretion of a gluey consistency was removed from time to time.

January 11 a large clot was washed out, resulting in an immediate relief from the headache. The left side was treated from time to time, and the vision rapidly improved in each eye. This patient was demonstrated before the Chicago Ophthalmological Society by Dr. Suker on February 16, "with vision—right, $\frac{2}{15}$; left $\frac{1}{5}$." He soon after returned to active work, and, in response to a letter, he called June 13 and reported that he had used his eyes continually for months and they had given him no more trouble. Vision as above; temporal half, left disc, atrophic. "I can now sleep on my right side and keep my mouth closed."

CASE 5.—Right Eye, Chorio-retinitis and Partial Optic Atrophy; Left Eye, Floating Opacities in the Vitreous; due to Sinus Empyema following Influenza.

Mr. C—, aged fifty-one; first visit June 16, 1904. History negative as to syphilis, etc. Left eye: myopic and divergent since childhood; vision is greatly reduced—hand movements in the immediate vicinity. Specks and clouds continually appear in the visual field owing to floating opacities in the vitreous. Right eye: externally normal, pupil slightly dilated and reacting slowly to

light. A few pigment spots on anterior capsule; lens and vitreous clear. The fundus shows disseminated choroiditis and retinitis, with fine flecks of pigment scattered throughout the fundus, especially in the periphery, resembling a retinitis pigmentosa. In the macular region a large atrophic area and several fine, yellowish spots indicative of old haemorrhages; papilla atrophic; visual field shows an absolute central scotoma and marked concentric contraction for white. The vision of the left eye had always been poor, but there had been no clouds before the eye, and the vision of the right eye was good until 1898, when the patient suffered a severe attack of influenza, at which time both eyes were greatly inflamed, "like raw beef." The patient suffered for several weeks from a continual, intense headache, which his oculist attributed to the inflamed condition of the eyes. During the following year he was under continual treatment for the headache and loss of vision, but without relief. Two years ago he again consulted an oculist and also a rhinologist, who, however, reported a negative nasal finding. In spite of this, nasal examination revealed bilateral chronic empyema; swollen middle turbinate, granulation tissue, and small polypi in each middle meatus.

(To be continued.)

**INJURY TO THE NOSE; BLINDNESS OF THE LEFT EYE;
DEATH FROM URÆMIA: A CASE UNDER THE WORK-
MEN'S COMPENSATION ACT.**

BY DR. LAUZUN-BROWN, L.R.C.P., L.R.C.S. EDIN.,
Anæsthetist, St. John's Hospital, Leicester Square, and The Central London
Throat Hospital; formerly Surgeon, Ashanti Field Force, and
Civil Surgeon, Netley Hospital.

A CASE illustrating the value of Professor Onodi's paper, published in the last issue of the Journ. of LARYNGOL., RHINOL., AND OTOL. (p. 382), on the etiology of contra-lateral disturbances of vision and blindness of nasal origin, occurred while the paper was being translated and prepared for publication. The case is of great importance from the specialist point of view, as indicating the effect of injuries to the nasal bones on vision, and adds another to the long list of such cases submitted to the section of ophthalmology at the recent meeting of the British Medical Association by Professor Manning Fish, of Montreal. He submitted a study of thirty-six successive cases of optic neuritis, in which nasal accessory sinus disease was present twenty-six times, and in which treatment of the sinuses

was followed by improvement of ocular condition in fifteen cases. Professor Fish has tabulated his cases, and No. 4 and No. 24 are of particular interest in connection with the following case, which was tried at the Bow Street Police Court in London under the Workmen's Compensation Act, on Wednesday, July 24, before Judge Smyly.

It appears that the patient was struck by a flying piece of iron on the inner side of the bridge of the nose, on the left side. He was taken to the Seamen's Hospital, where his injuries were examined and the eye dressed in the Out-patient Department. No report of the condition was obtainable. No record of the case was kept. The patient subsequently went to Moorfields Hospital in City Road, where he was treated for some time as an out-patient. He complained of a feeling of lassitude and illness, which gradually grew worse, and compelled him to go to the London Hospital—again as an out-patient. No record of the treatment or of the condition of the man was obtainable from this hospital.

On April 8 the patient consulted a private doctor, who, on testing the vision, found that the sight of the left eye was entirely lost. The eyeball was not destroyed and the pupil was fully dilated. The patient gave a history of headache and neuralgia over the left orbit. He suffered from sleeplessness, shortness of breath, and difficulty of movement. The cardiac action was weak, and intermittent one beat in every twelve. The medical man examined the patient's urine, and found it "loaded with albumen." The patient had suffered from two attacks of bleeding at the nose. Prior to the accident he was able to work as a hammerman, using a 10 lb. hammer, breaking up iron. The doctor discovered at his examination that the man's life was in danger, sent him to bed, and he died within two months and a half of the accident.

A *post-mortem* examination was made in the presence of three medical men. It was found that the heart was enlarged to 18 oz.; the kidneys were described as small, but were about of average weight, weighing together 9 oz. The capsules were slightly adherent. No microscopic examination of the kidneys was made. The liver was cirrhotic, and on examining the frontal lobes an adherent patch was discovered. No examination of the eye was possible, because the tissues had become so destroyed that it was impossible to make a careful examination of them at the *post-mortem*.

Knowing well that experience has shown that ocular symptoms occurring as a result of injury to the sinuses might variously affect

the vision and visual field, orbit, lacrymal apparatus, lids, extra-ocular muscles, conjunctiva, cornea, pupil, and uveal tract, and might lead to cataract, reflections, asthenopia, headache and neuralgias and total blindness of the injured side I advised the counsel who conducted the plaintiff's case (Mr. Martin O'Connor, barrister-at-law) that the accident had doubtless caused disturbance and injury to the ethmoidal and sphenoidal cells, that the frontal headache localised pain and neuralgias were indications of that, and that the gradual loss of vision of the one eye rendered it improbable that the disease was due either to detachment of the retina, which often follows an accident of this kind, or to albuminuric retinitis the result of long-standing kidney disease, seeing the blindness was limited to one eye—namely, the injured one. The quantity of albumen in the urine was, in my opinion, due to a recrudescence of an old-standing kidney disease, brought about by the mental emotion, depression and deprivation which followed as a direct result of the loss of sight. Who does not remember at such a time as this the eye, like a shattered mirror, multiplies the images of its sorrow and sees in innumerable far off places the woe which is close at hand? The sight began to fail immediately after the accident, on February 7, and gradually got worse until, on April 8, the patient was found to be totally blind in the injured eye. Prior to the accident there was no defect of vision.

It was contended by the defendant's counsel, on the other hand, that the blindness was not due to the accident, but to the kidney disease, notwithstanding the fact that it was a unilateral blindness, and that the accident was in no way responsible for the man's death, and further that shock, injury, or emotion, could not aggravate or accelerate kidney disease, or bring about a recrudescence of a latent diseased condition.

The coroner's jury had found that the man died from uræmia, brought about by injury to the eye, and that death was accelerated by the accident. Judge Smyly took the same view, and held that the man really died from the accident, which had roused a latent condition of disease in his system, and that the blindness of the one eye was caused by the injury. He awarded compensation to the amount of £263.

THE SECOND INTERNATIONAL CONGRESS ON SCHOOL HYGIENE, AUGUST 5-10, 1907.

BY MACLEOD YEARSLEY, F.R.C.S.

THE Second International Congress on School Hygiene was an unqualified success. Under the able presidency of Sir LAUDER BRUNTON, whose tactful and charming personality contributed in no small measure to the prosperous issue of the meeting, the Congress has not only continued the work commenced by its predecessor in Nuremberg three years ago, but has insured the furtherance of its object by the formation of a Permanent International Committee on School Hygiene.

Among its multifarious duties, carried out in eleven sections, some very important work has been done in rhinology, laryngology, and especially otology, and some account of this work it is incumbent upon the JOURNAL to publish.

In Section I, which dealt with the physiology and psychology of educational methods and work, a paper was read by Professor HAZELIN, of Sweden, on *Adenoids and Modern Language Teaching*. He pointed out the necessity of a medical examination of school-children and the importance of language teaching in regard to the training of comprehension and thought. He described the particular effects of adenoids upon pronunciation, and showed how, in many ways, the child suffers from pedagogical and parental ignorance upon these points.

In Section II much important work was done on the subject of medical and hygienic inspection in schools. Here, as in other sections, the members were unanimously agreed that part of the medical inspection should be carried out by a skilled otologist. Miss FRANCES IVENS, M.S., M.B., contributed a paper on *Ear Disease in East London School Children*, the result of an examination of 1000 children, aged ten to fourteen, in the upper half of the elementary school, as to acuity of hearing, condition of tympanic membranes, and association of deafness with adenoids and other throat diseases. Nearly one third of the children had deficient hearing, and 74 per cent. of these cases were associated with morbid conditions of the throat. The mental capacity of each child was estimated by the teacher. The tables showed that whereas 26 per cent. of the children with normal hearing attained a high degree of intelligence, only 17 per cent. of those with deficient hearing, and 14 per cent. of those with bad hearing, were placed in the same class. Removal of adenoids with suitable training in nasal

breathing was followed not only by cessation of otorrhœa, but also by great improvement of hearing; and the lack of power of attention and concentration, so characteristic of mouth breathers, was lessened. For these reasons all school children should not only be systematically examined for adenoids, but also should be efficiently treated. The habit of nasal breathing and the use of the hand-kerchief also should be taught.

Section III dealt with the hygiene of the teaching profession, and one of the papers considered was that of Mr. HULBERT, M.A., M.R.C.S., on *The Care of the Teacher's Voice*. The teacher was the greatest voice-user, and a very large percentage suffered from voice trouble through the improper use of the voice. The remedy lay in proper voice production, other hygienic measures being insufficient. Mr. Hulbert considered physical education, singing and elocution, the value of position for voice, the control of the breath, with the different kinds of breathing for different purposes, the hygienic effect of the internal method upon the vocal organs, and the abdominal press and its effect upon tone and phrasing. Tone was valuable in speaking, as it saved the voice and increased its audibility. The chief functional voice troubles and their relief in teachers was also discussed.

Much of the work done in Section VIII (contagious diseases, ill-health, and other conditions affecting attendance), although valuable as secondarily affecting the incidence of throat and ear disease in children, need not concern us here. Dr. JAMES NIVEN, of Manchester, however, read a paper upon *The Control of Diphtheria in Schools*, which requires notice. The influence of elementary schools in disseminating diphtheria had been studied over a long series of years, and was shown statistically, but the author did not consider that schools can be regarded as the strongholds of diphtheria, although they helped to maintain it. The analysis of older, or pre-bacteriological, outbreaks was exceedingly accurate in view of later knowledge. He thought that the special influence of schools is due to "flare-ups" of limited duration, and that a kind of immunity seemed to be established in infant schools. The detailed analysis of Manchester experiences of recent years, the importance to be attached to nasal "carriers," and the modes of spread in schools were discussed. Central bacterioscopic methods were essential, and negative swabbings were dangerous. The danger of Hoffmann's bacilli was pointed out, and it was insisted that, although the medical officer of health might personally manage the superintendence of diphtheria in small districts, he

could not possibly do so in large ones. More medical assistance was undoubtedly required in the public health service. Dr. Niven believed it was a mistake to close schools, and that school-children should not be re-admitted without sufficient guarantees of immunity as a result of swabbing.

Special schools for feeble-minded and exceptional children were dealt with in Section VIII, and here Dr. ALICE JOHNSON read a paper upon *The result of Hearing Tests in Schools for Mentally Defective Children*, which was especially interesting when compared with the paper by Miss Ivens, quoted above. Dr. Johnson tested 514 children from five special schools with a forced whisper from twenty feet. The conditions of the membranes, glands, and tonsils were also ascertained. The commonest condition associated with defective hearing was retracted membranes. Except defective hearing and enlargement of glands all the conditions found were about twice as frequent as among the 1000 East End children reported upon by Miss Ivens.

The most important discussions regarding deaf children took place in Section IX., which had to do with special schools for the blind, deaf, and dumb. On Wednesday, August 8, a paper on *Defective Articulation and its Prevention*, by the late Mr. VAN PRAAGH, was read by his son. This paper insisted upon the frequency of defective articulation, due mainly to careless training at home and in school. The articulation of teachers should be better, especially in infant schools, and classes should be organised in all large centres for the instruction of children with profound speech defects. It was desirable that the teachers of the feeble-minded should receive some training in colleges for teachers of the deaf upon the pure oral system, to enable them to obtain an extensive knowledge of the teaching of articulation and language.

The serious loss which all those who have to do with the deaf child, whether as doctors or as teachers, have sustained by the untimely death of Mr. VAN PRAAGH, was touchingly alluded to in the Section on Thursday, August 9, by the Chairman, Mr. ST. JOHN ACKERS, and a vote of sympathy to his family was passed.

Two papers, by Dr. KERR LOVE and Mr. MACLEOD YEARSLEY respectively, were read on August 9 and evoked a long and important discussion. The former, on the *Educational Treatment of the Deaf in all the Stages from Impaired Hearing to the Totally Deaf*, made a strong appeal for the individual treatment of the deaf-mute child. Compulsory education has swept all classes of deaf into the schools, and classification was now mostly needed. When did the

child become deaf? How much hearing did it possess? Five to 10 per cent. had no hearing but remains of speech—the semi-mute. Hearing remnants, unless within the speech area of the scale ($C = 128$ to $C^2 = 512$), were useless for teaching purposes. The defective deaf child required special education apart from the merely deaf-mute, and Dr. Love suggested the following classification in relation to education:

- (1) Hard of hearing children } Special classes in hearing schools.
- (2) 25 % { Semi-deaf, better cases } schools.
- , , worse cases } Special day or oral resi-
- (3) 60 % { Deaf-mute (average) } dental school.
- , , (oral failures) } Separate classes of manual
- (4) 15 % Deaf-mutes (*defective*) } alphabetschool(residential).

He insisted that every deaf-mute child should have the chance given to it of learning by the oral method.

Mr. MACLEOD YEARSLEY's paper took up *The Problem of the Deaf School-child*. Alluding to the fact that the deaf-mute and the mentally defective deaf-mute were adequately catered for by means of special schools, he pointed out that those partially deaf or suffering from dangerous suppurative disease were not receiving proper attention. Even when discovered they were left untreated through parental ignorance and indifference. Such children did not receive all the advantage obtainable from the education offered them in the normal schools. Such disability resulted in their becoming wastrels, and retarded their development, both intellectual and moral. Such poor children were blamed for inattention or dulness, when their condition was really due to inability to hear. He suggested three courses—special legislation, lectures to parents, or the appointment of special officers whose duty it should be to examine the children and impress upon the parents the necessity for immediate treatment. The death of every State school-child from curable middle-ear suppuration was a crime to be laid at the door of the Government.

The two papers were ably discussed by Drs. PERMEWAN (Liverpool), ROORDA (Holland), FREEDERBERG (Germany), HANSEN (Denmark), Messrs. B. P. JONES, ADDISON, DUPONT, STEWART THOMPSON, and Misses HULL and ADLER, and the following important resolution, proposed by Mr. MACLEOD YEARSLEY and seconded by Dr. HANSEN, was carried unanimously: "That in order to make suitable provision for those partially deaf children who could better be taught in a hearing environment, special classes should be provided under the management of teachers qualified to teach

articulation and lip-reading to the deaf. Such classes to be in each country under special legislation affecting afflicted children."

In the same section, Sig. FERRERI, of Rome, discussed *The Hygiene of the Teeth and Mouth in the Schools for the Deaf*. With the introduction of oral methods, he said, the matter of dental hygiene became obvious and urgent. Mouth-breathing required relief at early ages. Speaking generally, a comparative neglect of hygiene rules occurred in deaf schools and institutions. Prophylaxis was as important to the deaf as a dental conservative treatment. In a research on the development of pronunciation, the frequency of sigmatism at the end of the second dentition made this period of especial importance for teachers of the deaf. The other matters dependent on dental hygiene, such as ill-health and tuberculosis, had also to be remembered.

The necessity for care of children's teeth was also the subject of a paper by Mr. C. E. WALLIS, in Section II, who found only four children out of 245 with the normal number of healthy teeth.

In Section XI, however strangely located, the subject of disinfection and the toilet of the schoolroom so far as dust infection was concerned was dealt with in an excellent paper by Mr. AINSLEY WALKER. The paper was amplified in discussion by some very learned and scientific remarks from Dr. RIDEAL. Dr. LAZEN-BROWN pointed out that the old method of spring cleaning was as out of date as the institution of the Passover. The school hygienic method consists simply of spraying the walls with an effective disinfectant, one which is capable of uniting with the dust, and having done so, of destroying all germs of disease which have found a lodging in its particles, and of washing floors and wiping seats and desks with such a disinfectant. Though Dr. NIVEN had pointed out that diphtheria finds in the early period of school life a favourable occasion to extend itself, when he is asked how to deal with diphtheria outbreaks in schools he fails in neglecting to utter a word as to what treatment is to be applied to the school itself in the way of hygienic disinfection. One need scarcely speak of the school-room as a focus for the spread of tuberculosis. The ogre of expense blocks the way of effective action, and terrifies our officials, and we permit consumptive children to disseminate their infectious sputum and tubercle bacilli in the schoolroom without taking any steps to destroy those that lodge on the walls and floors of the school-room. What one feels to be wanting in this country is a compulsory Disinfection of Schools Act. Much of the disease and many of the defects of school-children would be prevented *ab initio* by such an enactment.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Twenty-ninth Annual Congress, held at Washington, D.C., May 7, 8, and 9, 1907, in connection with the Seventh Triennial Congress of American Physicians and Surgeons.

(Continued from page 415.)

Bilateral Abductor Paralysis of the Larynx.

Dr. CHARLES H. KNIGHT, of New York, reported a case of this nature. He thought the lesion referred to was more common than authorities would lead us to believe. It was often difficult to distinguish between abductor paralysis, abductor spasm, and ankylosis of the crico-arytænoid articulation, and prolonged observation was often required in determining the actual condition in a given case. The author passed in review the differential features diagnostic in the conditions named, and then reported the case of a middle-aged man of nervous temperament who in childhood had had chorea and had been subjected to severe nervous strain. He had been alcoholic for one year some years before coming under notice. Six years ago he had an attack of ptomaine poisoning. The year following he suffered increasingly from rapid heart action, dyspnoea, and vertigo. Later he developed sciatica, presumed to be the forerunner of tabes. Six years ago he contracted syphilis and had the usual secondary symptoms, but received thorough treatment. One year ago he was suddenly awakened one night struggling for breath. Later, when running for a train, he had his first attack of laryngeal spasm. During the last six months he had had some twelve or fourteen repetitions of this spasm, all but one or two coming on during sleep. Sometimes the attacks had followed excitement or exertion. After exercise there was always inspiratory stridor. The laryngeal image was typical of bilateral paralysis of the abductors, with a moderate grade of catarrhal inflammation. A redundant uvula was excised, inhalations of mentholised oil given with strychnine and iodide of potassium. Electricity seemed to aggravate the symptoms. Under the foregoing *régime* there had been some improvement. The author referred to the following proposed measures in such cases: (1) Intubation, (2) ablation of the soft parts lining the voice box, (3) division or resection of the inferior laryngeal nerve, and (4) tracheotomy. His personal experience had been limited to the first and last. In this particular

case one observer who had previously seen the patient urged immediate tracheotomy, but this was refused by the patient, who preferred death to wearing a tube. Dr. Knight thought that up to the present time at least the result seemed to have justified this decision. He considered that in such cases the ideal procedure, on theoretical grounds at least, was resection of one recurrent nerve, whereby the corresponding vocal band would be placed in the cadaveric position and the voice would finally be regained through compensating action of the abductors of the opposite side. He had been unable, however, to find any successful record of such a case. Mere division of the nerve was useless, as it was possible that in some of these cases a portion of the innervation of the abductors was derived from the nerve of the opposite side, and in addition there might be more or less ankylosis of the crico-arytænoid joint. Tracheotomy would doubtless afford us the most satisfaction. It was best done under local anaesthesia. The onset of dyspnoea was often alarmingly sudden. The prognosis in such cases was less hopeless than was generally believed.

Some Consideration Relative to Systemic Infection through the Tonsillar Ring.

Dr. J. L. GOODALE, of Boston, in this paper referred to one on the same topic read at the meeting in 1906, and stated that during the past year he had continued his work along the same lines. He called special attention to the part played by the system in resisting the invasion by micro-organisms. A series of cases had come under observation illustrating the possibility of the entrance of rheumatic poison through the tonsils. Removal of the latter had generally been followed by improvement, but in one case a continuation of joint symptoms was observed in association with throat symptoms. A detailed history was given of the case. The faucial tonsils were of all points in the tonsillar ring the vulnerable point, but even after they had been removed infection might occur through the lymphoid structures of the posterior pharyngeal wall. Tuberous infection might occur through normal mucous membrane without leaving any discoverable trace. In some of the obstinate cases, in which infection seemed to follow with as great frequency after operation as before it, it seemed probable that the cause of frequent bacterial invasion was not attributable as much to a faulty distribution of lymphoid elements as to a predisposition to such infection on the part of the patient himself. Finally, we must further study the part played by the host in such cases.

When one was called to such a case as had been considered, one should consider not alone the alterations in the tonsils but evidences of lymphoid change in the vicinity. Even if the tissues appeared normal one could not say that they might not have been in time past channels of entrance for micro-organisms. If the individual in his previous attacks of systemic disease had had coincident disturbances in the throat this fact became of great importance. If it was possible to test the opsonic index of the individual with reference to the germs suspected of etiological relation which had been recovered from the throat, confirmatory evidence would thereby be obtained.

Dr. W. E. CASSELBERRY called attention to the chain of lymphatic follicles behind the posterior faucial pillars, inflammation of which was called pharyngitis lateralis. This participated in the usual inflammations of the pharyngeal lymphoid tissues. In his opinion it was responsible for some of the systemic infections as rheumatism, endocarditis, etc. Such glands might be destroyed by the cautery. They often kept up trouble after the tonsils proper had been removed, and it was often necessary to extend the cauterisation up beyond the level of the velum palati and down into the pharynx.

Dr. ROBERT C. MYLES, of New York, said that the tonsil projecting into the throat was the one to which most attention had been paid, but there were other kinds which were just as dangerous. The crypts went down deep, and there the chief sepsis occurred on account of the moderate amount of epithelium. By properly examining the cervical glands, one could tell the pathology of the throat tonsils without looking at the throat. If the tonsil affection was very definite the glands would be hard. In proportion to their softness the infection was likely to disappear. Twenty per cent. of tonsillar affections were of this variety, while 80 per cent. were of the palatal tonsil. Some of these tonsils to which he referred were incapable of extirpation, which was a serious matter. Such tonsils might extend three quarters of an inch into the palate. There was danger in operating of setting up cellulitis of the neck. The best course was to clean such a tonsil out and involute it. A certain amount of cervical adenitis might result from the salpingeal folds, and they should not be overlooked. Adenoids might cause swelling of the glands in the post-cervical region. No consideration of any tonsil case was complete which ignored the amount of adenitis present. It was difficult to say how often such glands were tuberculous.

Dr. GEORGE L. RICHARDS, of Fall River, Mass., had seen cases with periodical attacks of tonsillitis in which it was difficult in the intervals to note any excess of lymphoid tissue, even on separating the palatal folds. In regard to the nature of the glandular inflammation he had found it at times tuberculous, and at other times not. Often a tonsillectomy should be followed by enucleation of the cervical glands.

Dr. FRANCKE H. BOSWORTH, of New York, said that it was our duty to remove diseased lymphatics. Enlarged lymphatics did not necessarily call for removal. If we removed the mechanical condition in the pharynx, destroying the focus that entangled the germs, we did all we were called on to do. It was not our duty to dig out all the lymphoid tissue, but to remove the pockets which were the source of the mischief. Invagination of the tonsil was a diseased condition, but unless there were pockets the condition was not one of disease. The so-called palatal tonsil he did not believe to be an organ of the normal body. A large, rounded tonsil projecting into the throat without any follicles did no harm.

Dr. F. C. COBB said that the pathological retention by pockets or anything else tending to obstruct the flow from the tonsils would cause more disturbance than a mere inflammation of the tonsil or of the lymphoid tissue. The latter might be a normal protective. At times it was overcome by the invading organisms, which gained access to the general circulation. It was a mistake to obliterate normal tissue simply on the evidence that through it pathological germs occasionally gained access to the system. There was very little sepsis in acute tonsillitis. The tonsil took care of an enormous number of bacteria.

Dr. EMIL MAYER called attention to a recent article by Jacobi, taking an entirely different standpoint from that of the theory that there was a direct infection beginning with the lymphatics of the throat.

Dr. REGINALD H. FITZ, of Boston, President of the Triennial Congress, was invited to participate in the discussion, and said that rheumatism was the disease which most interested the general practitioner so far as the present topic was concerned. Whatever the tonsil might do in some infections it did not do the same in all. Certain peculiarities of one micro-organism might allow it to pass through the tonsil, but perhaps this was not true of all micro-organisms. He did not know whether the result of tonsil extirpation had been determined with regard to its bearing on cases of multiple arthritis. Infections occurring after removal of the tonsils

should be investigated in relation to those occurring before operation.

Dr. MYLES said that he did not advocate removal of lymphatics when they were protective, but only when they were suppurating.

Dr. J. N. MACKENZIE, of Baltimore, referred to some of the former theories as to the function of the tonsil. The lust for tonsil operations had now reached its zenith. The laity had become infected with the zeal for removal. He thought that the matter of infection through the tonsils had been very much exaggerated. Dr. Goodale had beautifully pointed out the bacteriological side of the question, but there was another side—the clinical. He was inclined to think that the modern total tonsillectomy was absolutely unnecessary and sometimes harmful. One should be guided in each case coming under observation by safe and sane conservatism and common sense.

Dr. BOSWORTH referred to his statement made in London twenty-seven years ago, that there were no tonsils in a healthy throat, and believed that the truth of this statement would soon be accepted by all practitioners. The tonsil described by anatomists represented a disease process.

Professor GUSTAV KILLIAN gave a demonstration of various new instruments devised by him for use in bronchoscopy and oesophagoscopy and a general discussion ensued on these operations.

Dr. H. P. MOSHER was delighted to have had the opportunity of seeing these new devices. He preferred to have the light on the end of the tube so as to get it as near the foreign body as possible. He had noted that Professor Killian had had to put the suction tube inside the main tube so as remove the mucus. With the plain, straight solid tube with a light at the end and a smaller tube set into the side of this tube to remove the mucus it was not necessary to introduce a special tube for this purpose. It was of great importance to know how many cases required an emergency tracheotomy tube after the manipulation of passing the tubes through the cords. Such a thing had been called for in this country and he would like to know of the experience in this respect in Germany.

Dr. E. FLETCHER INGALS said that in his practice he found it better to have the light at whichever end gave the most satisfaction. The light at the distal end did not always work well, no matter how bright it was. He preferred a suction tube that could be introduced through the main tube, as we needed all the room we could get; the larger the tube the better also the lighting.

Dr. EMIL MAYER said that very frequently blood would show itself on the mirror, obscuring the view. The holding of the light in the hand in the instrument shown was a great advantage. He thought it useless to practise on the cadaver. It was much better to work on the living dog. An injection of morphine kept the animal quiet. One then had conditions approaching clinical practice, viz. the hot air in the face, the mucus, and the little blood.

Professor KILLIAN, in closing the discussion, said that the diameter of an electric lamp must be at least three millimeters and that the mirror in the tubes would, in such cases, obstruct most of them. He had found records of 116 cases of tracheotomy after bronchoscopy. In these cases the extraction was difficult and it was necessary to have the tube in position a long time. Personally he had never had such a case. If it was not possible to remove the foreign body through the larynx we had to do a tracheotomy and also a lower bronchoscopy.

Modern Procedures in Excision of Intrinsic Malignant Growths of the Larynx.

Dr. J. SOLIS-COHEN, of Philadelphia, presented this paper. He said that modern procedures virtually excluded all endo-laryngeal methods. This procedure comprised a central division of the thyroid cartilage and sometimes of the crico-thyroid membrane, cricoid cartilage, or even of the trachea, as may be requisite to expose fully the morbid mass and its immediate surroundings when the wings of the thyroid cartilage were separated with retractors or with stout loop ligatures. He regarded preliminary tracheotomy as not requisite except when strong indication existed for precautionary use of a tube after operation. The whole might be done under either local or general anaesthesia, the choice being dependent in great measure on the location and apparent extent of the neoplasm and in part on the predilection of the operator. The author then described in detail the steps of the modern operation. He preferred to follow his own method of beginning with an ordinary tracheotomy, and, after introduction of the cannula, to incise the skin only so far as to uncover the larynx, thus leaving a broad bridge of skin above the cannula. This lessened considerably the dimensions of the external wound and favoured reunion in the sequence. The bridge could be sacrificed if necessary. In his own practice no stitches were taken in the skin wound. Instead, a

longitudinal strip of perforated plaster was placed along each side of the neck an inch from the line of incision, and then this plaster was sutured in several places along the line of thyrotomic incision through the perforations and tied only so tight as to bring the severed edges of the skin to gentle apposition and leave the wound free for easy and immediate inspection. No threads were passed over the line of tracheal incision, which was left bare to favour expulsion of matters from the air passages. A pad of gauze was moistened in bichloride solution, while a broad strip of antiseptic gauze was doubled over a narrow strip of adhesive plaster and secured to the neck, so that the ganze hung down over the dressing upon the seat of the wound. Post-operative treatment was most important, and a skilled assistant should be on hand for the first twenty-four hours. Should it become necessary to re-introduce the cannula into the trachea for any length of time the atmosphere near the head of the bed must be moistened so as to prevent desiccation of secretion. The author paid a generous tribute to the recent work of Semon and Butlin. Dr. Cohen's chief points of variance from the usual methods were the retention of the skin bridge above referred to, the removal of the growth *en masse* upon a plate of excised perichondrium and superjacent tissue, dressing with compound tincture of benzoin, avoidance of sutures in the cartilage and skin, and the special method of loosely approximating the edges of the incisions. The tincture of benzoin was mopped thoroughly on the raw surface left after removal.

Non-recurrent Carcinoma of the Larynx, Removed through the Natural Passages.

Dr. E. FLETCHER INGALS, of Chicago, reported this case. The patient was a man, aged forty-four, labourer, who came under observation in January, 1906, complaining of hoarseness of six years' duration. For the last three weeks he had felt some pain in the region of the left half of the hyoid bone, none previously. Had had also a recent catarrhal cold. There was no dyspnoea, but he could not talk, as a rule, much above a whisper. Had formerly been a mild smoker. Had lost a pound or two and had a slight hacking cough. A pinkish-gray tumour involved the anterior five sixths of the left vocal cord, filling the ventricular opening and considerably obstructing the glottis, crowding outward into the ventricular band. The growth had the appearance of malignancy, but owing to its long duration the author hoped it

was only papillomatous. The greater part of it was removed at the first sitting. Three days later more fragments were removed, and there was considerable pain felt by the patient in the larynx in the subsequent days. The patient was not seen again for a week, and in the meantime the microscopist had reported that the neoplasm was a slowly-growing carcinoma with growth toward the surface and considerable kerato-hyaline transformation of the epithelial cells. At this time Dr. Ingals found a growth at the anterior end of the left cord larger than at the last visit, and this was thoroughly removed with a Mackenzie forceps. After removal of this a growth of about the same size was seen just below the cord and it was also removed. When the patient returned four days later he was very hoarse. Sedative measures were instituted and continued for several months. The patient's condition gradually improved, and in two months it was noted that the voice was much clearer. The patient was again seen over a year after the operation, and for the last three or four months his voice had been perfectly normal. A slight thickening of the cords was noted, but was referred to a recent cold. Dr. Ingals stated that although interference with malignant laryngeal growths was likely to stimulate their increase, it appeared to him that when there was doubt as to exact nature, and when conditions were such that we had a hope of removing the neoplasm thoroughly by the endolaryngeal method, this latter should be selected. If the examination revealed malignancy and the tumour speedily returned, laryngotomy or laryngectomy should at once be advised if there was reason to believe that a thorough removal could be effected.

Epithelioma of the Larynx ; Removal by Thyrotomy ; no recurrence after three and a half years.

Dr. HENRY L. SWAIN, of New Haven, reported this case, his patient being a clergyman, aged forty-seven, who came under observation in March, 1903, with increasing hoarseness dating back several months. The larynx was slightly congested throughout and much swollen on the entire left side, so that no clear view of the true cord could be had. Subsidence of the swelling later revealed a white papillomatous mass growing from the upper aspect of the cord and apparently coming out of the laryngeal ventricle. Nearly the entire cord was covered by the growth. After some training of the patient the entire visible mass was removed in small pieces, as it proved very friable. Microscopical

evidence was negative. Some two months later the mass returned and was again removed. This was done five times in the next two months. Six months after the first appearance of the patient it was decided that something more radical must be done. Up to this time no positive evidence of malignancy was manifest under the microscope. Thyrotomy and exsection were then done after the usual modern methods. Recovery was rather slow, but satisfactory. At the present time the patient spoke in a perfectly audible, but rather husky, voice. A fairly good presentment of a vocal band had been produced in the shape of a dense white band where the true cord should be. The false cord was flatter than usual and the ventricle had been obliterated. The reporter laid emphasis on the following points: (1) The ever present difficulty in coming to a diagnosis; (2) the wisdom, even when in doubt, of operating, so as to ensure complete removal; (3) the repeated observation of the surprising difference in the appearance of the growth when the larynx was opened; (4) the impossibility of being sure everything malignant had been removed; hence the value of using Paquelin cautery; (5) the possibility, when the larynx was roomy, of shutting up the whole wound instead of leaving the tracheotomy tube in place; (6) the unquestioned advantage of the absolutely recumbent position with the feet raised; (7) the small amount of suffering in an intelligent, brave, and tractable patient as compared with the mercy of a complete cure.

Dr. INGALS saw no reason why cocaine and adrenalin should not be used together in these operations so as to obviate so much mopping. He had had many disagreeable symptoms following cocaine alone. The adrenalin might prevent the absorption of the cocaine and thus prevent constitutional effects. An excess of gum benzoin, say two drams to the ounce, was an advantage, as it made a firmer film over the tissues.

Dr. THOMAS HUBBARD had observed that in etherised patients adrenalin did not produce ischaemia, at least in the nose. He did not know any reason for this. He had not made the same observation with reference to chloroform.

Dr. J. PAYSON CLARK gave the history of a case of laryngeal cancer operated on ten years ago. The patient was still living at seventy and was in good health, with a very firm, strong voice.

Dr. GORDON KING, of New Orleans, gave a similar case history, his patient being alive and well two years after operation and with good voice.

Dr. R. C. MYLES, of New York, believed that there was some-

thing individual in these cases. The cancer might be of the superficial type and a good result follow operation, but he did not believe that cancer of the deeply penetrating type could be cured.

Dr. D. BRYSON DELEVAN, of New York, reported the history of a case illustrating the fact that the picture as seen in the mirror gave a very misleading idea as to the extent of laryngeal involvement. His patient had been operated on ten years ago and was still in fair condition. Some of the surgeons of the present day were coming to the conclusion that cancer did not admit of cure. The time limit was not to be relied on. It was insufficient to place it at three years, as experience frequently showed. Under the method as presented by Dr. Cohen we were likely to secure the best results. He thought, however, that all methods were hopeless and in the main disappointing. We should continue our investigations in the hope of discovering some cure which would put surgery out of the field entirely.

Dr. J. PAYSON CLARK stated that an operation which would prolong life was often justified even if the case eventually proved fatal. He related the history of one case.

Epithelioma of the Larynx.

Dr. CLEMENT F. THEISEN, of Albany, N.Y., reported this case, which emphasised the necessity of early diagnosis and also the fact that microscopical examination was often difficult and that the laryngologist might lose valuable time owing to the pathologist's uncertainty. The patient was a man, aged fifty-seven, with a husky voice for some months. A flat, nodular, firm growth was seen, involving about two thirds of the left cord. Surrounding parts were reddened. Examination of some small fragments suggested that the condition was merely inflammatory. The reporter's original diagnosis had been carcinoma. Under palliative treatment there was temporary improvement, but some weeks later it was noted that the whole of the left cord had become involved and there were evidences of encroachment on the right cord also. The diagnosis was now positive, and the dyspnoea had become so great that a tracheotomy was done under local anaesthesia. After some delay on the patient's part he consented to a radical operation. A total laryngectomy (Gluck) was done three weeks later. Pneumonia proved fatal on the thirteenth day. The microscope showed typical epithelioma. It was worthy of note that the marginal epithelium of the growth was found in a normal condition, but its transformation into malignancy could be definitely

seen in the sections. The growth itself was entirely of epithelial origin, and irregular columns of spheres of epithelial cells could be seen growing into the underlying tissues in all directions. In the centres of these areas there was manifest a tendency to rapid degeneration, for the cells were in many places replaced by detritus. The interstitial connective tissue was thickly infiltrated with small mononuclear leucocytes and plasma cells, and in some areas there was proliferation of the small capillaries.

Sarcoma of the Pharynx.

Dr. THEISEN also reported this case. The patient was a girl, aged eight, with a history of dyspnoea for several months. A large mass was seen in the throat, including the soft palate and pushing it forward. The growth extended almost to the epiglottis and apparently involved the naso-pharynx. The glands were enlarged on the left side of the neck. It was decided that the case was inoperable and the mixed toxins injections were given. Microscopical examination of a piece of the growth was not decisive. Clinically there was no doubt as to malignancy. Injections directly into the mass were begun and after some time constitutional reaction was noted. Adrenalin injections were not used, as the method was too slow to effect any result in this case. The iodides were also without result. Nothing seemed to make any impression whatever on the growth. Death came from increasing dyspnoea about two months after the patient came under observation. The microscope showed spindle-celled sarcoma with hyperplasia of adjacent lymph-nodes. The reporter referred to similar cases recently recorded in the literature of sarcoma.

A Prize Fund.

At the closing executive session it was announced that the retiring President (Dr. de Roaldes) had offered the Association 500 dollars for the establishment of a prize fund. This offer was gratefully accepted, and it was voted to attach to the fund the name of the donor.

The following gentlemen were elected to membership: Honorary Fellow, Professor Leopold von Schroetter, Vienna (transferred from the list of Corresponding Fellows); Active Fellow, Dr. Joseph S. Gibbs, Philadelphia, Pa., proposed by Drs. Lincoln and Packard. Thesis: "Is there an Ideal Operation for the Correction of Deviations of the Nasal Septum?" Dr. Christian R. Holmes, Cincinnati, O., proposed by Drs. Kyle and Mayer. Thesis: "Pyrogenic Diseases

of the Accessory Sinuses of the Nose and the Etiology of Facial Erysipelas, including Secondary Effects upon the Eyes." Dr. Chevalier Jackson, Pittsburg, Pa., proposed by Drs. Freer and Harris. Thesis: "Ligation of the External Carotid Artery from the Pharyngo-rhinologic View-point; Report of Cases." Dr. George E. Shambaugh, Chicago, Ill., proposed by Drs. Rhodes and Casselberry. Thesis: "The Architecture of the Ethmoid Labyrinth."

The election of the officers for the coming year resulted as follows: President, Dr. Herbert S. Birkett, Montreal; First Vice-President, Dr. J. Payson Clark, Boston, Mass.; Second Vice-President, Dr. J. Edwin Rhodes, Chicago, Ill.; Secretary and Treasurer, Dr. James E. Newcomb, 118, West 69th Street, New York City; Librarian, Dr. Joseph H. Bryan, Washington, D.C.; Member of Council to serve for four years, Dr. A. W. de Roaldes, New Orleans, La. The determination of date and place for the next Congress will be decided by the Council. The meeting was the largest in the history of the Association.

PROCEEDINGS OF THE AUSTRIAN OTOLOGICAL SOCIETY.

Meeting held March 26, 1906.

Professor POLITZER in the Chair.

(1) Dr. HAMMERSCHLAG showed a *Case of Multiple Neurofibromata* in which the auditory canal was involved.

Dr. ALEXANDER mentioned a case seen by him three months previously. The patient suffered from chronic middle-ear suppuration. The auricle was normal in shape, but was without firm attachments to the auditory canal, and in consequence was considerably displaced downwards. Professor Politzer thought that the condition was congenital. The treatment was very difficult; an extensive plastic operation was done, but the tendency for the entire auricle to sink downwards remained, and a stenosis of the auditory canal resulted.

(2) Dr. ERNST URBANTSCHITSCH showed the result of a *Plastic Operation for Retro-auricular Fistula* done one month previously.

Dr. FREY said that owing to the dragging of the auricle a straight scar did not give satisfactory results, the scar being apt to become thin and give way in the centre; he preferred a curved scar.

(3) Dr. HEINRICH NEUMANN showed a patient with *Post-operative Perichondritis*. Dr. Neumann had lately made bacteriological examinations in such cases, and in five cases the pyocyanus had been found in pure culture; he had also made inoculations into animals with positive results (several of the inoculated animals were present). His experience agreed with the literature on the subject, that post-operative perichondritis, in the form in which it is usually seen, was entirely due to pyocyanus infection. As regards treatment, it was important to note that the pyocyanus was unaffected by hydrogen peroxide while silver nitrate destroyed it. Infection was fairly frequent in the course of cases of chronic middle-ear suppuration, and many of the acute exacerbations occurring in this disease were to be traced to infection by the pyocyanus; the pain was obviously due to its tendency to infiltrate the tissues. He suggested that, as a prophylactic measure, nitrate of silver should be used before every operation, and large quantities of pulv. acid. boric. or acid. salicylic. afterwards.

Dr. KAUFMANN asked whether the pyocyanus existed in the discharge from the middle ear or only in the external meatus.

Dr. NEUMANN said that there was often difficulty in deciding this point; in the present case, when first examined fourteen days after the operation, the microbe was found in the discharge from the middle ear.

Dr. GOMPERZ pointed out that several authorities agreed in attributing pathogenic properties to the pyocyanus, and that Kessel had asserted that the otitis of newly-born infants was due to this cause.

Dr. ALT said that although in many cases perichondritis was caused by the pyocyanus, still it might be produced by other bacteria, and it was possible that the deeper incision into the concha which is made in Korner's method of dealing with the cartilage rendered the parts more liable to infection.

Dr. NEUMANN, in reply, referred to the work of Lermoyez, Voss, and Korner on the subject. After a careful review of the cases described, any doubt as to the pathogenic properties of pyocyanus could scarcely exist. Cases of otitis had been reported which had terminated fatally with intra-cranial complications, and on subsequently making a bacteriological examination of the thrombus in the sinus or the inflamed meninges only the pyocyanus could be cultivated.

(4) Dr. NEUMANN showed a girl, aged seven, who had been

operated on for *Thrombosis of the Sinus*. The sinus transversus had been opened as far as the torcular, the jugular vein had been tied, and the bulb opened. The temperature was normal.

[NOTE.—Patient is now cured, and has left the hospital.]

After this case Dr. NEUMANN showed an analogous one in whom the *Thrombus in the Sinus was removed in one piece*.

(5) Dr. RUTTIN described the following case :

The patient, aged twelve, had had the radical mastoid operation performed on both sides two years previously. On the left side there was nothing abnormal to be seen. On the right side, projecting from the posterior superior wall of the cavity, was a blue fluctuating swelling (2½ cm. x 1 cm.) with sharply-marked edges. It was diagnosed as a cyst, Dr. Ruttin recalling the following analogous case : A patient came under observation a year after a radical mastoid operation. On the posterior wall of the operation cavity in the region of the sinus was a long, blue, fluctuating swelling which had been diagnosed abroad to be a projection of the sinus-wall. As no pulsation was recognisable Professor Politzer incised the swelling. A clear yellowish-red fluid escaped. The posterior wall of the cystic cavity exposed was composed partly of mucous membrane and partly of healthy bone. These cysts, from their position and colour, are very liable to be taken for the sinus. The blue colour arises from the fact that the delicate cyst-wall is semi-transparent. The aetiology is not quite clear ; probably the condition arises owing to mucous membrane being left at the radical operation.

Dr. NEUMANN thought that the condition arose if during the operation healthy mastoid cells were opened and the mucous membrane not thoroughly removed.

Dr. HAMMERSCHLAG remarked that Zeroni had declared that the condition was due to the in-rolling of the epithelium.

(6) Dr. RUTTIN demonstrated a case in which a diagnosis of *Cerebral Tumour* had been made. She could hear conversation at six metres distance, whispering voice at four metres, had good perception of high and low notes, but astonishingly little perception of bone-conducted sound. Dr. Ruttin had observed these symptoms in a series of cases of brain tumour. Politzer, in his manual, also draws attention to them.

Dr. HAMMERSCHLAG suggested that it was necessary in such a case to carefully exclude hysteria. KNOWLES RENSHAW.

PARISIAN SOCIETY OF LARYNGOLOGY, OTOLOGY,
AND RHINOLOGY.

Meeting held July 12, 1907.

The President, Dr. WEISSMANN, in the Chair.

A Case of Stuttering cured by Operation.—Dr. BOISVEIL reported a case of a child aged six, affected with stuttering, which disappeared on three occasions, immediately after each of the three following operative proceedings: removal of adenoid vegetations and tonsils, taken out separately. The defect of pronunciation reappeared, however, at the end of a few months. It did not disappear completely until the author had removed a portion of the uvula, without anaesthesia, in order to create a deep impression on the child.

Dr. CASTEX remarked that there have been published already several cases of stuttering which had disappeared on removal of adenoids. One of the latest was brought forward by Dr. Grossard. On the other hand, he has seen an adenoid patient acquire a temporary stuttering after the removal of adenoids. This, however, was simply a nervous effect.

Two Cases of Hæmatoma of the Auricle; Surgical Intervention.—Dr. CASTEX showed two cases with photographs of typical hæmatoma which were interesting from several points of view. The two hæmatomic collections, which were of the size of an almond, and fluctuating, were situated on the pinna of the right ear, at the level of the fossa of the helix, and of the fossa of the anti-helix. The first case, which was of spontaneous origin, had the peculiarity that a twin brother of the patient had observed developing in the same year a similar swelling on the upper part of his own auricle.

The second case was of traumatic origin, and occurred in a man, aged forty-three, who had rubbed his ear violently when carrying a wooden box on his shoulder. To prevent complication, the collection of blood was opened by a vertical incision.

The pathological anatomy of these cases is as follows: A collection of blackish but fluid blood massed itself between the cartilage, which appeared to be normal, and the perichondrium, which was plastered with a thin layer of clots and appeared calcareous in places. The histological examination will be made later on. There was no cystic sac which could be dissected out.

The operation was carried out after a subcutaneous injection of cocaine, but Dr. Castex states that in similar circumstances he would prefer to administer chloroform, because the curetting of the cavity, which had to be done very minutely, was found to be extremely painful. These two cases correspond to the two theories which have been put forward with regard to this affection: in the first by its spontaneity and by the co-existence in the two twins can be explained by a disturbance of the central nervous system (Mathias Duval, Laborde, E. Gelle). The second, certainly traumatic, shows that the usual position of these traumatic swellings is sub-perichondrial.

Dr. PASQUIER showed on the same occasion the photograph of a haematoma of several years' duration, in which absorption had only taken place very imperfectly, leaving a perforation of the auricle. In this patient the auricle was wrinkled in its upper half, and in addition its thickness remained about 2 cm. Its consistence was fibrous, and there was no liquid or any apparent cavity at the level of the haematoma. The blood had become absorbed, and the walls of the cyst of the haematoma transformed into fibrous tissue. As a result of this observation it would be necessary to be cautious with regard to the future prognosis, as regards the appearance of the auricle, which has been affected with haematoma.

The Utility of Oto-rhinoscopy in Cleft Palate.—Dr. CHERVIN in the first place called attention to the fact that the operation for congenital fissure of the bony palate, or the velum, came particularly within the domain of laryngology, not merely on account of the situation or surgical intervention, and of the delicacy of touch which was required, but, above all, on account of the usefulness of the oto-rhinoscopic examination. The operation does not *ipso facto* improve speech. It had but one purpose—to permit of the education of the parts concerned in articulation; but this education does not depend alone upon the orthophonic treatment which was carried out. It is to a great extent dependent upon the topographical anatomy of the organs, which act together in speech. It is only after the surgeon and the orthophonic physician have together examined the patient that care from the triple view of the anatomical conditions of the eyes, nose, and pharynx, and the surgical possibilities as well as the verbally educational possibilities, that the prognosis can be made in view of the knowledge of the causes. It is this prognosis which is of greatest importance for the patient, whose requirement is uniquely that his speech should be improved.

Dr. CASTEX recalled that his teacher Trélat attached great importance to orthophonic exercises before operation in children, in whom he was called upon to operate for cleft either of the hard or soft palate.

On Submucous Resection of the Nasal Septum; Demonstration of Instruments.—Dr. MOUNIER exhibited: (1) A retractor for the ala nasi and the mucous flap after its detachment; (2) a cutting elevator (Rugine), to detach the cartilage without perforation of the mucous membrane on the opposite side; (3) cutting forceps for the resection of the cartilages and osseous septum, however deeply situated. He made several suggestive observations suggested by his experience on the stages of the operation.

Dr. KOENIG observed that Dr. Mounier was in agreement with Freer, of Chicago, on the three following points: (1) The use of retractors instead of Killian's speculum; (2) the resistance of the flap to infection; (3) the size of the incision in the mucous membrane. In regard to the forceps, Janson's forceps cut in the same way as the one shown by Dr. Mounier.

A Case of Naso-pharyngeal and Meningitis as a Complication of Measles.—Dr. PASQUIER narrated a case of a child, aged seven, who, during the convalescence from measles, which had followed a normal course, was suddenly attacked by a recurrence localised in the first place in the nasal fossæ and in the naso-pharynx. There was a muco-purulent discharge from the nostrils, nasal respiration became impossible, the mucous membrane of the pituitary region and the naso-pharynx became congested, and there was dyspnoea and fever. Local treatment improved the symptoms and restored respiration, but the child subsequently presented symptoms of meningitis, which became more marked and were followed by death. With regard to this case, Dr. Pasquier arrived at the conclusion that during convalescence from measles as well as from scarlatina, diphtheria, and erysipelas, the patient should be under the care of an oto-rhino-laryngologist, who would be in a position to supervise any recurrence in the nasal or in the pharyngeal mucous membranes. He, however, thought further that infection of these mucous surfaces was very often the point of invasion of meningitis.

Exhibition of a Patient with Morning Buccal Hæmorrhage.—Dr. KOENIG brought forward a young woman, aged twenty-nine, who complained of having blood in her mouth each morning, without

cough or vomiting. On examining the mouth Dr. Koenig was surprised to find round the last upper molar on both sides a large swelling of the gum exactly of the same form and the same size, smooth, round, not inflamed, and of cartilaginous consistence. The young woman stated that this state of things dated from infancy, and that the swelling had never put her about in any way.

Abstracts.

LARYNX.

Strazza, G. (Genoa).—*On a Case of Severe Sub-glottic Stenosis produced by Amyloid Infiltration.* “Bolle d’Malatt. del Orrechio,” etc., November, 1906.

The patient was a man, aged fifty, in whom the phenomena of stenosis of the respiratory tract had developed slowly after an attack of influenza. Laryngoscopic examination revealed considerable narrowing of the sub-glottic space, apparently caused by diffuse infiltration of the whole of the mucous membrane; there being no immediate danger, tracheotomy was put off till the next day; during the night, almost without the nurses observing it, the patient died. On *post-mortem* examination there was no degenerative change in either the abdominal or pulmonary organs; there was simply an enormous uniform hyperplasia of the cricoid region and of the upper rings of the trachea, which was in the shape of a narrow elliptical funnel. There were evidences of acute exacerbations of tracheitis and bronchitis. The histological examination of the tissue which caused the stenosis showed that there was an old-standing change in the deeper layers of the mucous membrane followed by an intense amyloid infiltration, which constituted the greater part of the tumefaction. The most superficial parts of the mucous membrane were normal, and in them the constituent elements, the glands, were affected by a marked necrobiotic change resulting from the compression exercised by the amyloid mass. The author draws attention to the rarity of the case, because up to the present amyloid degeneration has been described only as found in small fibromata or other tumours. Photographs are shown of the pathological specimens and of numerous microscopic preparations which confirm his description in every detail.

V. Grazzi.

Casselberry, William E. (Chicago).—*Diagnosis and Treatment of Laryngeal Tuberculosis.* “Med. Record,” July 20, 1907.

The diagnosis of tuberculosis of the larynx ordinarily is not difficult, yet in exceptional cases its substantiation or exclusion was beset with uncertainty. As a basis of comparison, the usual diagnostic data were formulated; the hyperplasia of the interarytænoid fold and vocal processes, of the arytaenoids and ventricular bands, sooner or later of the vocal cords, and, lastly, of the epiglottis; the “mouse-nibbled” ulcers which early supervened amid the tumefaction not being conspicuously interblended with cicatrices. The first type is one of speedy development, persistent progress, and rapidly fatal termination. It was named the galloping

type in order further to emphasise the contrasts between it and the chronic hyperplastic type. Among the other unusual types which were apt to involve uncertainty in diagnosis were those in which the larynx was affected only on one side—the unilateral type, the verrucose type, the so-called conjoined syphilitic and tuberculous type, and the condition of arrest of the disease. Well-authenticated, convincing instances of the latter fortunate termination were discouragingly rare in literature, yet they certainly occurred. He considered that the treatment of the laryngeal complication was bound up in that of the pulmonary and general state, which, however, did not imply that local measures were without avail, for they certainly were helpful, though the general condition should not be subordinated to the local measures.

Lauzon-Brown.

Einhorn, A. (Berlin).—*A Remedial Inhalation for Asthma.* “Münch. med. Wochens.,” July 2, 1907.

The author draws attention to the variations in the analyses made at different times of a much-used patent spray for the cure of asthma, and, from experiment arrives at the conclusion that the following gives most satisfactory results:

Nitrite of Cocaine	1·028 per cent.
“ , Atropine	0·581 “ ”
Glycerine	32·16 “ ”
Water	66·23 “ ”

It should be used with a spray apparatus suitable for oily liquids and of such proportions as to give off 0·0122 grams of liquid in three minutes. This quantity would contain 0·00015 gram of nitrite of cocaine and 0·00007 of nitrite of atropine, and, therefore, well within the limits of safe dosage. Many of the sprays in the market give off five times as much. (The number of compressions of the bellows in each minute is not stated.)

Dundas Grant.

Schaefer, F. (Münich).—*Professor Alfred Einhorn's Remedial Inhalation for Asthma.* “Münch. med. Wochens.,” No. 28, 1907.

The writer, who first submitted a well-known secret “asthma-cure” for analysis, speaks highly of the formula arrived at by Professor Einhorn, which he finds even more effective than the secret remedy. He dwells upon the necessity for seeing that the patient times the compression of the bellows so that the spray is received as inspiration is commencing. The advantage of knowing exactly what we are using is very obvious.

Dundas Grant.

Coolidge, A., jun.—*Vocal Nodules in Children.* “Boston Med. and Surg. Journ.,” May 30, 1907.

A case of a girl, aged ten, is reported briefly. She had been hoarse five years, having acquired a habit of speaking loudly on account of a companion's deafness. Adenoids were removed about the same time, but without altering the vocal character. Examination showed two pearly-white nodules, one on the border of each vocal cord, between the anterior and middle thirds. The author briefly reviews the literature of vocal nodules, and points out that they are rarely mentioned as occurring in children. In his own experience they not infrequently appear as early as four or five years of age. He believes they often disappear during adolescence, especially in boys at the time of the change of voice. He has

certainly seen them much more frequently in boys than in men. Rest and the proper use of the voice are the essential points in treatment.

Macleod Yearsley.

NASO-PHARYNX.

Osler, William (Regius Professor of Medicine, Oxford).—*Mouth-Breathers.*

At the Second International Congress of School Hygiene, in his introductory remarks to the Section dealing with the Medical and Hygienic Inspection in Schools, directed attention to the condition of the nose and throat as points of great importance. Kit Catlin, he said, the well-known writer on the North American Indians, published a stirring pamphlet many years ago with the title "*Shut your Mouth and Save your Life,*" showing how all of the native tribes of North America were nose-breathers, and he attributed most of the ills of civilisation to the mouth-breathing. I think it is safe to say that there are more mouth-breathers in England to the acre than in any country in the world. In so many persons, if not when quiet, on the slightest exertion the mouth is open, and often with it a most unlovely expression of the face. Dr. Crowley estimates that 28 per cent. of the Bradford school were mouth-breathers. This result of nasal catarrh, and of enlargement of the tonsils, and of the lymphoid structures of the throat, has a most injurious effect on the growth of children and on the formation of the mouth and of the chest, and what is more serious, a mouth-breather has rarely much mental snap or energy. One can read the mind's complexion in his dull, heavy, expressionless face. What here are we to do? The condition is one by no means easy to treat, requiring much skill and sometimes a serious operation. The same problems confront us with regard to the state of the eyes and of the ears, just as important as those relating to the infectious disease. The school clinic, which seems a necessity, and for which so many plead, has really great difficulties in the way of its establishment, particularly in the very districts in which it is most needed. Are we to look forward to travelling specialists in each district before whom the children will be lined up—Monday the eyes, Tuesday the ears, Wednesday the teeth, and so on? Much may be done to prevent these defects and diseases, more particularly the nasal catarrh, the adenoids, and the deafness. The temperature of many of the schools is too low in the winter; in others the ventilation combines a maximum of draught with a minimum of heat. And most important of all, the damp condition of the houses in which so many of the poor people live favours the chronic nasal, pharyngeal catarrh. The discussion of these and other problems will at any rate stir up public interest, and even if many of the suggestions savour of socialism I do not think this is to be dreaded when placed in the balance against the health of the nation.

Lauzun-Brown.

EAR.

Bárány (Vienna).—*The Investigation of Reflex Ocular Movements, Vestibular and Optic, and their Significance in the Regional Diagnosis of Ocular Palsies.* "Münch. med. Wochens.," Nos. 22 and 23, 1907.

For some time past it has been noticed that in certain cases of conjugate deviation of the eyes from a cerebral lesion the patient, though unable

to turn the eyes voluntarily to one side—say the right—was able to do so if he fixed some object with his eyes and this object were then moved towards the right side, or if the head were passively rotated towards the left. This indicates the existence of a reflex as distinguished from a voluntary conjugate deviation.

In the present paper Bárány discusses the value of nystagmus as a localising symptom in the differentiation between ocular palsies resulting from lesions of the ocular nuclei, mid-lesion, and cortico-mesencephalic paths respectively. He points out that in health two varieties of nystagmus can be elicited. Firstly, there is *vestibular nystagmus*, which can be produced either by rapid rotation of the individual in a revolving chair (rotation to the right producing horizontal nystagmus to the left, and *vice versa*), or by syringing either ear with cold water. For clinical purposes the latter method is more convenient. The presence of such nystagmus can be used as a test for the integrity of the vestibular nerve. The direction of the horizontal nystagmus, say to the right, can be influenced by causing the patient to incline his head strongly to the left side, or by syringing the left ear with the patient lying flat on his back.

Secondly, there is *optic nystagmus*. This is produced by making the individual watch a rapidly-moving landscape when looking out of the window of a railway-carriage, or by making him watch a series of vertical bars moving on a horizontally-revolving cylinder.

Lesions of the optic nerve abolish optic nystagmus, lesions of the vestibular nerve abolish vestibular nystagmus, whilst in supra-nuclear ocular palsies both varieties of nystagmus are preserved.

Bárány enters into a complicated discussion as to the different factors of vestibular nystagmus, maintaining that the slow part of the movement is truly vestibular in origin, whilst the rapid part may be either labyrinthine or extra-labyrinthine. He gives an elaborate diagram indicating his views as to positions of the various nystagmus centres in relation to the ocular and vestibular nuclei, the mid-brain and the cerebral cortex.

Purves Stewart.

von Torok, B. (Budapest).—*Caries of the Horizontal Semi-circular Canal Associated with Unusual Ocular Phenomena.* “Arch. f. Ohrenheilk.,” Bd. 70, Heft 3 and 4.

Goltz, Cyon, Högyes, and others have shown that, when the nerve-endings in the ampullæ of the semi-circular canals are stimulated, reflex movements of the ocular muscles are initiated, and these movements follow this fixed rule: they are always antagonistic, the contraction of one muscle being succeeded by the contraction of its opponent.

Von Török's case is interesting as showing a deviation from this type. The patient was a male, aged twenty-one, who had suffered from intermittent suppuration in the left middle ear since an attack of scarlet fever in childhood. He was admitted to hospital on account of violent pain in the affected ear together with vertigo so severe that he was unable to walk without aid. On being made to close his eyes while standing he swayed and fell in a direction backwards and towards the unaffected side.

The external auditory meatus was filled with thick, fetid pus, and bulging of the postero-superior wall was found. œdema and tenderness over the mastoid process were present.

On examining the eyes nystagmus, most active when the patient looked towards the sound side, was observed. And it was while investigating this symptom that the phenomenon was discovered which gives

interest to the case. This consisted in the sudden appearance of extreme convergent strabismus in both eyes when the patient was asked to look at near objects. Obviously both internal recti were over-stimulated at the moment of fixing and accommodating. The symptom was transient, the eyeballs quickly going back to their usual oscillating movements. In every other respect the eyes were normal.

At the operation, in addition to extensive cholesteatomatous disease in the mastoid, the bone covering the horizontal semi-circular canal was found to be carious, and presented a sinus leading into the depths of the canal.

The operation was followed by the rapid disappearance, entire and permanent, of all the symptoms including the ocular phenomena. (The hearing tests are not given.)

Dan McKenzie.

Ryan, L. R. (Galesburg).—*Acute Mastoiditis.* “Med. Record,” July 20, 1907, p. 122.

The writer considered that the Stacke-Schwartze operation was seldom necessary, and that Wilde’s incision was adequate in that it seemed to meet all the indications if properly done. In a series of cases ranging in age from two to seventy years recovery had been brought about by the Wilde’s incision alone without complication or the recurrence of the disease.

Dundas Grant.

THERAPEUTICS.

Mancioli (Rome).—*The Light Bath for the Tympanic Membrane in certain forms of Dry Otitis.* “Bolletino delle Mal., etc.,” June, 1907.

In the otological clinic at Rome the author, as clinical assistant, has made experiments with the light bath. The forms of dry otitis in which he obtained good results in a few sittings were those which depended on the uric acid diathesis. Catarrhal otitis, whether acute or chronic, was not benefited by this method of treatment.

V. Grazzi.

Dionisio, Ign. (Torino).—*On Photo and Radio-therapeutics in Ozæna, Chronic Suppuration of the Middle Ear, and Chronic Pharyngitis.* “Bolle. d’Malatt. del. Orrechio, etc.,” November, 1906.

The author quotes fifty-four cases of ozæna treated by this means, and also forty-eight of suppuration of the middle ear; he claims good results from this treatment in atrophic and chronic catarrhal pharyngitis.

V. Grazzi.

REVIEWS.

Geschichte der Ohrenheilkunde (History of Otology). By Dr. ADAM POLITZER, Professor of Otology in the University of Vienna. In two volumes. Vol. I: From the First Beginnings up till the Middle of the Nineteenth Century. With 31 illustrations on plates and 19 photographs in the text. Stuttgart: Ferdinand Enke, 1907, pp. 467.

This interesting and valuable work has evidently been a labour of love with Professor Politzer, for the amount of literature which he has

gone through in preparing it must have been enormous. Some of the materials are already to hand in the histories of general medicine, but for the details which are so fully given reference must have been made to the original works. The papyri of Ebers and Brugsch have afforded some interesting items of information. The work begins with a description of the treatment of the ear as practised among the ancient peoples of the East, coming then to the time of the Greeks and Romans both before and after Hippocrates. The influence of Galen is particularly dwelt on, inasmuch as the weight of his authority almost deterred his successors from increasing their knowledge by their own investigations.

It is interesting to note the description of the symptoms of otitic meningitis as given by Hippocrates, and later by Paulus Agineta and Oribasius (p. 17). Needless to say the acuteness of clinical observation displayed in the time of Hippocrates contrasts strongly with the crudity of the notions on physiology and pathology. The account given by Celsus (pp. 22 etc.) of the therapeusis of ear diseases in his time shows great advance. There were then specialists in Rome who devoted themselves to diseases of the ear and were known as auricularii. Galen's application of the term "labyrinth" is quoted as indicating his want of knowledge of the anatomical detail of the organ of hearing (p. 27). He distinguished, however, the auditory from the facial nerve, and described the passage of the latter through its twisted osseous channel. He is credited (p. 29) with devising the incision behind the ear for the scraping of carious spots in cases of caries of the meatus. Galen's anatomy was accepted without demur until the rise of the science of anatomy in Italy in the sixteenth century (p. 30).

The progress in the middle ages is attributed in great measure to Alexander, of Tralles, who extended his knowledge by the more modern method of visiting other countries, and among them, Spain (p. 32), where the Arabs had given a considerable impetus to the science of the day. It is curious to note in his works suggestions as to hearing-exercises for deaf mutes (p. 35). The influence of Alexander and his contemporaries on the late Byzantine physicians seems extremely strong (p. 39). The Arabs (Rhazes, Averrhoes, etc.), appear to have paid greater attention to the local examination of the ear (p. 40). The author expresses surprise that so celebrated a thinker as Avicenna should have shown so little of his ratiocinative caution in his studies of aural therapeutics (p. 42). The history of the various contributors in the transition period is full of interest, but it is in the renaissance in the sixteenth century that we come upon the most outstanding names, such as Vesalius, Fallopius, and Eustachius. The Cinquecento was in Professor Politzer's opinion the period, not of the restoration, but of the actual creation of otology (p. 79). The anatomist found in the artist an invaluable collaborator in his teaching, as shown by the anatomical delineations of Leonardo da Vinci, and of Titian's pupil Calcar. So keen was the desire for subjects for anatomy that the deeds of the "resurrectionists" of recent date were then anticipated. The difficulty in procuring human temporal bones led to the resort to those of the lower animals, and perhaps unintentionally to the foundation of the comparative anatomy of the organ of hearing. Vesalius described and named the malleus, incus, promontory, and fenestræ, but seems to have left it to Ingrassia (p. 86) to identify the stapes. The tympanum was so named by Fallopius, whose work was praised by Haller, who said of it, "Eximum opus est, cui nullum priorum comparari potest" (p. 90). His remarkable observations are reviewed in special detail. Ingrassia, Fallopius, and

Eustachius were the memorable founders of the macroscopic anatomy of the ear (p. 100). Among their successors Varolius is the one whose study of the intra-tympanic muscles is the most advanced (p. 104). Fabricius, of Aquapendente, observed that the ossicles are almost as large in the foetus as in the adult, and that at birth the tympanum is filled with mucus (p. 115). Casserius expressed the opinion that the ossicles act as supports for the tympanic membrane and have nothing to do with the function of hearing, thus anticipating Secchi and Zimmermann. The workers at this period in Germany, Holland, and France receive a rapid review, among the chief being Felix Plater (pp. 123 and 147). The origin of the aural speculum is given as probably attributable to Guy de Chauliac (p. 153). It is curious that in Glaser's works there appears to be no reference to the Glaserian fissure (p. 171). Thomas Willis is credited with being the first to recognise the essential site of hearing, and it is of course to him that we are indebted for the description of the "paracusis" associated with the name of Willis. It may be of interest to our readers to have the original as quoted from his work "De Animâ Brutorum," book I, chap. xiv, p. 134, as follows: "Enimvero surditatis species quædam occurrit, in quâ, licet affecti auditus sensu penitus carere videantur, quamdiu tamen ingens fragor, uti bombardarum, campanarum, aut tympani bellici, prope aures circumstrepit, adstantium colloquia distincta capiunt, et interrogatis apte respondent, cessante vero immani isto strepitu, denuo statim obsurdescent" (p. 185). About the same time Duverney published what may be considered the first text-book of otology, his name forming an important landmark in the history of our art. A considerable amount of space is devoted to his researches in the anatomy, physiology, and pathology of the ear. His drawing of the tympanic portion of the temporal bone is reproduced (p. 198). He made observations on hearing by bone-conduction, and Professor Politzer shows how nearly his theory with regard to the function of the cochlea antedated that of Helmholtz (p. 204). The lead taken by Italy in the investigation of the anatomy of the ear is signalised in the chapter on "Otology in More Modern Times" (p. 230), especially as represented by Valsalva and Morgagni. The latter appears to have been the first to realise that when brain abscess and otorrhœa were associated, the former was caused by the ear disease and was not, as his predecessors supposed, the cause of the discharge (p. 248). Scarpa's studies regarding the *fenestra rotunda* (p. 263) are most interestingly set forth. He considered that vibrations were conveyed to the labyrinth both through the ossicles and the *fenestrae*.

In regard to the eighteenth century, we are told that in spite of the excellent works of Bonet and Morgagni, little interest was taken in the pathological anatomy of the ear up to the middle of the nineteenth century, when "Toynbee, with his path-breaking work, inaugurated a new era in otology" (p. 315). An interesting review of the position of the subject is given, including a valuable bibliography.

The history of perforation of the mastoid process (p. 327), of the use of the Eustachian catheter (p. 331), and of paracentesis of the membrane (p. 336) will be read with interest, as will also that of the controversy concerning the so-called foramen of Rivini (p. 340).

Coming to the position of otology in the first half of the nineteenth century, Professor Politzer says: "It must be regrettfully admitted that during that period this branch did not make the same progress as the other branches of the healing art." This is most noticeable in respect to the pathological as compared with the

normal anatomy. There were many exceptional investigators into the latter, and among them may be named Soemmering, Huschke, Home, Shrapnell, Breschet, Rosenthal, Jacobson, and Arnold, while among the physiologists may be mentioned Autenrieth, Majendie, Müller, Flourens, Wollaston, Wheatstone, Weber, Saunders, Buchanan, Yearsley, Itard, Deleau, and Kramer. It will be seen from the names how different nations have contributed according to their temperaments. Thus in Germany the tendency was mainly in the direction of theoretical and experimental investigations, while in France it took more the form of artistic ingenuity in the invention and elaboration of instruments and methods for treatment, and among our own countrymen the practical and clinical aspect was most evident.

Professor Politzer is no *laudator temporis acti*, and while giving full credit to the earlier observers for their acuteness of observation he points out errors into which they fell, and which, in the light of subsequent investigation, seem quite remarkable when we consider the wonderful advances they made in spite of the limited means of investigation at their disposal.

It is sincerely to be hoped for those who are not able to read his very fluent and clear German that a translator will be found whose literary ability is worthy of the great work which Professor Politzer now offers us. As a picture gallery the book is of the utmost interest, and it will long remain as a monument to the author's industry and devotion.

Manual of Anatomy, Systematic and Practical, including Embryology.

By ALEXANDER M. BUCHANAN, M.A., M.D., C.M., F.F.P.S.,
Glasgow, Professor of Anatomy in Anderson's College, Glasgow,
etc., etc. In two volumes. London: Baillière, Tindall & Cox.

This important Manual of Anatomy is very properly dedicated to Lord Lister, in grateful acknowledgment of the powerful influence which he exercises over the intellectual culture of his Glasgow students, of whom the author was one. Professor Buchanan has done credit to his early culture, and the first volume of the work is marked by a refinement of style, an exactitude of expression, a beautiful simplicity of arrangement, a fulness of material knowledge, and an unrivalled lucidity of language worthy of a great master.

This work is a new departure in anatomical science, and is a credit to the great Scottish anatomical school which has produced anatomists like Liston, Syme, Fergusson, Barclay, Fyfe, Gordon, Robert Knox, Lonsdale, John Reid, Charles Bell, the Lizars, Goodsir, Struthers, Turner, Clelland, and, by no means the least among them, our author, Alexander M. Buchanan. His pupils all over the world will welcome this anatomical work as a memento of an accomplished scholar, of a grand anatomist, an exquisite demonstrator, and a master of lucidity. The two volumes reflect the man. The clearness of his exposition is well exemplified in the first volume, by the care which he has shown in describing the bones of the head, with which our speciality is more immediately connected. It is a work of reference, so complete, accurate, and simple, as must prove of the greatest service in unravelling the many complex and difficult points of surgery and anatomy which are so constantly met with in otology and rhinology.

The second volume deals with the abdomen, thorax, head, and neck, with the nervous system, and the organs of special sense. It consists of

nearly 600 closely printed pages, and is illustrated by more than 400 well-printed diagrams, mostly original. Some of the diagrams are coloured, and therefore of the greatest service to the student. A feature of the book is the excellent descriptions of the structure of the viscera, and the careful attention paid to their relations. The systematic account of each viscus and its immediate and more remote relations is much more clearly and accurately given than is usual in practical handbooks, which generally adopt an arrangement whereby the student is compelled to refer back to another section to find out full details of the part on which he is at work. The book is one of the most useful and comprehensive manuals of anatomy that is to be found on the market, and should prove as useful to the practitioner as it undoubtedly is to the student preparing for examination.

The descriptions of the organs of special sense are characterised by the same fulness, clearness, and simplicity of arrangement that favourably demarcate the less complicated portions of human anatomy. For students who wish to master the anatomy of the ear, throat and nose, no better guide can be offered than is presented in this handbook. Practitioners, and even specialists, who are supposed to be closely acquainted with the multitude of minute detail which their speciality involves, will doubtless find something to be learned from this valuable work.

The construction of the book has been to him obviously a labour of love, and it will be a gratification to Professor Buchanan to know that his book is esteemed as a replica of his own clear-mindedness, which will endear him still more in the affections of his numberless students at work in every branch of the medical profession in every part of the globe.

THE EXHIBITS AT EXETER.

MAYER & MELTZER, 71, Great Portland Street, London, W.

Amongst the instruments on view, Messrs. Mayer & Meltzer showed a large and varied selection of the latest patterns devoted to our speciality.

These included their well-known Electric Examination Lamps, both the ordinary incandescent and the newest patterns, a series of Punch Forceps for removal of tuberculous growths from the larynx, epiglottis, etc. A large selection of Mastoid Instruments and various Drills, Punches, and Flushing Apparatus for the sphenoidal and ethmoidal cells and maxillary antrum, including the new pattern by Dr. Watson Williams, and the Cannulae and Probes by Mr. Chichele Nourse.

Mr. Stuart Low's Instruments for Submucous Turbinectomy and Ploughs, Raspatories, and Punches for resection of the septum nasi were exhibited.

The Oto-massage Apparatus, which included the hand-driven motor, giving upwards of 2000 strokes of the pump per minute; a similar motor is used for driving a Mastoid Drill, designed by Dr. Neil Maclay, small and portable enough to be carried in the ordinary hand-bag, yet sufficiently powerful to drive the largest burs.

We can only enumerate a few articles of the very large selection

exhibited by Messrs. Mayer & Meltzer, but all the instruments seem well finished, and showed that attention to detail which is so important to the operation in throat, nose, and ear work.

MAW, SON & SONS, 7 to 12, Aldersgate Street, London, E.C.

The following were some of the instruments for the nose, throat, and ear, exhibited at the recent meeting of the British Medical Association at Exeter by this firm :

A new form of Standard Lamp, a number of which have been supplied to the new Out-patient Department of St. Bartholomew's Hospital.

A new form of Intra-tympanic Syringe, suggested by Mr. West. This syringe has a metal piston fitted to a glass barrel, and the whole is readily sterilisable.

Forceps for removing Granulation, as suggested and used by Mr. Charles Heath in his new operation.

A series of Mr. Charles Heath's Mastoid Instruments.

A new form of Nasal Spray ; this is particularly suitable for hay fever, or for those patients who have to use such an apparatus, as it can be carried in the pocket, and is so made that the contents cannot spill into the pocket.

A Post-nasal Pump, suggested and used by Mr. Kelson. This is a modification of Delstanchi Intra-tympanic Pump.

Killian's Instruments for straightening the Septum.

Brunton's Auriscope fitted with Electric Lamp.

A new Aural Snare, as suggested by Mr. West and used by him at St. Bartholomew's Hospital. This is a modification of Cumberbatch's, and has a quick-running screw.

A set of Ear and Nose Instruments, as suggested by Dr. Jobson Horne.

MESSRS. PARKE DAVIS AND CO., of 111, Queen Victoria Street, E.C.

This firm exhibited pharmaceutical specialities and apparatus, medicine cases, etc. We select the following as more particularly pertaining to our speciality :

The "P. D. & Co." Antidiphtheria Serum, used all over the world, bears a certificate from the Pathological Laboratory of the University of Cambridge, recording its antitoxin unit strength and freedom from micro-organisms.

Adrenalin Solution and Adrenalin Inhalant, the form most used for the external administration as a potent constringent and cardiac stimulant. The inhalant is an oily solution best adapted for local medication of mucous membrane.

Codrenine and Eudrenine, compounds respectively of cocaine and eucaine with adrenalin, are useful in nasal and other operations. They provide efficient analgesia and greatly diminish bleeding.

Adrenalin and Eucaine Tablets, for making analgesic and haemostatic solutions, were mentioned in our issue of January last.

Formidine, mentioned in our June issue, is an iodine compound reported to be more powerfully antiseptic than iodoform without its

unpleasant odour and toxicity. It forms a valuable substitute for iodoform in various suppurative conditions of the nose and ear.

Another drug newly introduced by this firm is Iodalbin, an iodo-protein compound possessing the characteristic alterative action of the iodides of potassium and sodium without their liability to derange the stomach. It is claimed to afford a perfect substitute for the inorganic iodides in the treatment of chronic bronchitis and asthma, and to be equally effective in smaller doses.

The "Glaseptic" Nebulisers and Sprays possess several distinctive advantages, such as ease of cleansing, freedom from corrodibility, simplicity of construction, portability, etc.

Chloretoine Inhalant is an antiseptic and analgesic agent for treatment of nasal and laryngeal disorders of bacterial origin—hay fever, laryngitis, bronchitis, etc.

Acetozone Inhalant is powerfully germicidal, yet non-irritant and non-toxic.

THERAPEUTIC PREPARATIONS.

MESSRS. BURROUGHS WELLCOME & CO., LONDON.

"SLIPPERY ELM."—We have received specimens from this manufacturing firm of a preparation which they have described as "Slippery Elm." The preparation of slippery elm presented is announced to contain five grains (0.324 grm.) of mucilage of slippery elm. The product may be slowly dissolved in the mouth, and when so administered may act as a demulcent and sedative astringent in dryness of the throat or mouth, or other conditions requiring such application.

TABLOID CARBOLIC ACID AND SLIPPERY ELM.—This is a combination of the mucilage and phenol. Each product contains half a grain of carbolic acid. When dissolved slowly in the mouth it serves as a mild disinfectant, and may be useful in diseases of the pharynx, tonsils, and other parts of the mouth that are amenable to such treatment.

A. WULFUNG & CO., MANUFACTURING CHEMISTS, 83, UPPER THAMES STREET,
LONDON.

FORMAMINT TABLETS.—This preparation of menthol and formaline is a combination of exceptional utility and value to oral surgeons. It combines all the qualities requisite for a medical preparation. It is effective, pleasant, and arranged in suitable dosage for acting on the inflamed mucous membranes of the mouth. It has been tried in several of the throat hospitals, and has met with the appreciation of the many distinguished surgeons who have constantly to prescribe it. Formamint is a loose chemical combination of formic aldehyde and lactose, in the form of a compressed tablet, each one containing one-sixth of a grain of formic aldehyde combined with lactose, citric acid, pepto-hydrochloric acid, and flavouring agents. Thus prepared formaline differs entirely from its simple solution, is much more powerful in action, less irritating, and its action is continued after absorption, thus aiding the reputed neutral-

ising effect of healthy saliva upon the bacteria of the mouth. It is a valuable and agreeable preparation, and is most useful in the toilet of the mouth and throat.

Messrs. DUNCAN FLOCKHART & Co., London.

BORALDEHYDE.—This liquid preparation of Messrs. Duncan Flockhart & Co. is primarily intended for septic and ulcerated throats, but also tends to soothe inflamed conditions of the pharynx and the tonsillar region and the buccal cavity generally. When diluted it acts as a pleasing and effective dental mouth-wash, invaluable after the extraction of teeth or stumps. When diluted it contains 1 per cent. of pure boric acid, and 1 in 4000 real formaldehyde in a glycero-menstruum. It is best used in a strength of 1 ounce to 8 ounces of distilled water. As a spray it is most agreeable for tonsillar, throat, and laryngeal conditions.

CORRESPONDENCE.

To the Editor of THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

SIR,—Kindly permit me to draw your attention to an error in the August number. On page 386 my friend Dr. Percival J. Hay is familiarly alluded to as "Percival."

Yours faithfully,
WILFRED GLEGG.

[The paper by Professor Onodi was written in German and the translation is literal. Our correspondent will be pleased to learn that Professor Onodi has already noticed the error and rectified it in his publication on this subject, 'Der Sehnerv und die Nebenhöhlen der Nase,' of which we have just received an advance copy. He correctly refers to the case on page 66 of his monograph.—EDITOR.]

To the Editor of the JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

DEAR SIR,—My attention has been called to an error on p. 348 of my text-book on "Diseases of the Nose and Throat."

In discussing thyrotomy for benign neoplasms of the larynx, reference is made to "Permewan's two thyrotomies, etc." In a most courteous note to me Dr. Permewan declares that he has never done a thyrotomy for benign growth. My words are based on a statement found on p. 408, *Progressive Medicine*, May, 1902 (StClair Thomson), and the episode illustrates the danger of taking things second-hand, even from a distinguished authority.

With profound apologies to Dr. Permewan and to those who honour me by consulting my book,

I remain, yours very truly,
C. H. KNIGHT.

THE
JOURNAL OF LARYNGOLOGY,
RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

**THE TREATMENT OF CHRONIC SUPPURATION OF THE
MIDDLE EAR.¹**

BY WILLIAM MILLIGAN, M.D.,

Lecturer on Diseases of the Ear, The University, Manchester; Hon. Surgeon, Manchester Ear Hospital; Aurist and Laryngologist, Manchester Royal Infirmary.

MR. PRESIDENT AND GENTLEMEN,—Notwithstanding the wide-spread interest which has been taken in the treatment of chronic suppurative disease of the middle ear, and despite the enormous amount of literature which has been written upon the subject, there still exists considerable diversity of opinion not only as to the best and most effective methods of treatment, but more especially as to that much discussed question, "at what stage of the disease should local treatment cease and operative interference of one sort or another begin?" In order to endeavour to solve this knotty problem, the officers of this section have selected for discussion the following subject: "The treatment of chronic suppurative disease of the middle ear without recourse to the complete radical mastoid operation," in the hope that the opinions and individual experiences of members here present may be fully stated, that facts gleaned from

¹ Introduction to a discussion in the Section of Laryngology and Otology of the British Medical Association, Exeter, July, 1907, by kind permission of the Editors.

personal experience may be clarified, and that some definite expression of opinion may be formulated.

I take this opportunity, Mr. President, of thanking you and the other officers of the section for the honour you have conferred upon me in asking me to act as one of the openers of this highly important and practical subject of discussion.

It is my intention to lay before you certain deductions gained from personal experience, and to attempt to evolve therefrom a working hypothesis. It is held by many that the surgical pendulum has already swung too far, that there is a too great readiness to resort to surgical interference without having first given local therapeutic measures a fair trial, whilst on the other hand there are many who claim that the pathological findings in cases of chronic suppurative middle-ear disease warrant an even earlier recourse to surgical interference than is at present adopted.

Before considering the question of treatment in any of its aspects, it is essential to have a clear conception of what constitutes chronicity—in other words, to define at what particular stage of the pathological history of a given case an acute inflammatory process takes on those characteristics which warrant its acceptance as a chronic disease. Information upon this point is forthcoming from clinical, histological, and bacteriological evidence.

From the purely clinical standpoint, we find that as the acuteness of the inflammatory process subsides, the symptoms of pain, fever, and general discomfort disappear *pari passu*.

Clinically, chronicity is evidenced by an absence of acute pain, by a more or less continued abeyance in the function of the implicated organ, by the existence of a discharge from the infected tympanum, and by such objective indications as the presence of a perforation with gradually thickening edges, by the formation of exuberant granulations, or by extension of disease to the underlying bone.

From a histo-pathological examination we find that whereas during the course of an acute suppurative otitis media there is extensive shedding of the superficial columnar epithelial elements of the mucosa in conjunction with a copious leucocytosis and the frequent presence of red blood-cells in the discharge as chronicity becomes established, the type of epithelium becomes changed to a much more flattened and squamous variety, whilst leucocytes tend to be gradually replaced by lymphocytes and myelocytes.

Chronic discharges from the middle ear cleft are almost in-

variably mixed infections, the predominating organisms being saprophytes.

The invasion of the tympanum by organisms, pathogenic or otherwise, in pure cultivation or in mixed, induces an active resistance on the part of its mucosa, whilst the tissue changes which result are of a purely defensive nature. The fact of prime importance is the endeavour on the part of the cytoplasm of the part to digest the attacking bacteria.

Where the irritant is slight desquamation results, where of greater virulence leucocytes are present and act as phagocytes, and by means of their intra-cellular ferments the cytases take an active share in ridding the infected region of micro-organisms.

The endothelial cells of the tympanic capillaries participate also in this defensive warfare, whilst, owing to their extreme permeability, they permit of the passage of phagocytes into the surrounding tissues.

It may be asked, in what way do these facts help us to determine the question of an acute *versus* a chronic process? The greater the number of shed macro- and microphages, the more active the defensive action of the tympanic mucosa, the more acute the underlying inflammatory process. Conversely given a decreasing number of living leucocytes in the discharge, the discharge still remaining fairly copious, the deeper the tissue changes effected the more chronic the process.

The fibroid changes which gradually take place in the tympanic mucosa are neither more nor less than the outcome of prolonged phagocytic warfare. The newly-formed vascular loops are projected by the action of the endothelium of the minute blood-vessels, whilst around them cellular elements collect and granulations form, with subsequent metamorphosis into definite connective-tissue bundles.

In cases of acute septic otitis media it is by no means unusual to obtain pure cultures of an organism, whereas in chronic cases the infection is invariably a mixed one. The more numerous the varieties of bacteria found, as a rule, the more chronic the process.

The types of chronic suppurative middle-ear disease met with in practice are of two main kinds: (1) the septic; (2) the tuberculous, to which a septic infection has been grafted.

In the majority of cases of genuinely chronic septic middle-ear disease the whole middle-ear cleft is involved. We have thus to deal with infection in a somewhat composite cavity whose lining membrane is constantly secreting discharge, a discharge which tends to

be retained owing to imperfect means of exit, and to infect the surrounding bony parietes.

The first essential to successful treatment is the establishment and the maintenance of free drainage. Were this simple axiom more generally attended to in the acute stages of the disease there would unquestionably be far less chronic mischief. Small perforations should invariably be enlarged. This may be effected by means of a free incision or by a fine cautery point. My own practice is to make two incisions through the existing small perforation in the shape of a St. Andrew's cross, and then to aspirate the contents of the middle-ear cleft by means of a Siegle's speculum or a Sondermann's suction apparatus. Aspiration confers a three-fold benefit: In the first place it empties, or at least helps to empty, the middle-ear cleft of secretion; in the second place it draws from the distended tympanic blood-vessels a large quantity of serum possessing bactericidal properties, and in the third place it secures a certain eversion of the lips of the incision, thereby tending to prevent a too early closure.

The actual removal of a definite segment of the membrane is at times advantageous, but it is not easy to carry out. Tufts of granulation tissue which obviously tend to prevent the exit of discharge and the ingress of medicaments should be removed either by the application of chemical caustics or by removal by means of small spoons, curettes or forceps. For this purpose I have found the miniature Hartmann's forceps of great value. On the other hand, where granulation tissue is present in small amount, and where it in no way interferes with the mechanism of drainage, the proper course, I believe, is to leave it alone, recognising the fact that it is the outcome of an effort on the part of nature to protect the muco-periosteum and to ward off pathogenic invasion. Its removal under such circumstances serves merely to open up fresh channels of possible infection, whilst if free drainage be provided and the inflammatory process in the tympanum subsides, exuberant granulation tissue tends spontaneously to disappear. In chronic septic inflammation of the middle-ear cleft, where nature—or failing nature, the surgeon's art—has provided satisfactory and efficient drainage, inflation by means of the Eustachian catheter or Politzer's bag is of undoubted value. Its usefulness is much increased if followed up by aspiration.

Irrigation of the middle ear by way of the Eustachian tube is a useful and effective method of lavage, the main objections to its employment being that to be of real service it must be carried out

by a surgeon accustomed to handle the Eustachian catheter. Where this is possible the method has the great advantage that it cleanses the original pathway of infection—the Eustachian tube, that it empties the hypo-tympanum of residual secretion, and that it irrigates the middle-ear cleft from end to end.

Considering that the vast proportion of cases of middle-ear sepsis are the result of infection *per tubam*, I would here emphasise the necessity of attending to the condition of the nose, naso-pharynx, and pharynx. All pathological entities arising in the upper respiratory tract and tending to interfere with the normal physiological function of the Eustachian tubes, or to cause infection or re-infection of the antro-tympanic mucosa, should be summarily dealt with. Under the former heading are included adenoids, naso-pharyngeal growths, nasal polypi, deflected septa producing definite nasal stenosis, hypertrophy of the inferior and middle turbinated bodies, enlarged tonsils, *et hoc genus omne*. Under the latter suppurative disease of the nasal accessory sinuses, purulent rhinitis, atrophic rhinitis (*ozaena*), and carious teeth. There is no question that many a case of chronic purulent middle-ear disease clears up rapidly after removal of even comparatively small tufts of adenoid vegetations situated in the immediate neighbourhood of the tubal orifices—tufts which produce no nasal stenosis, but which, by harbouring localised catarrhal changes, interfere materially with the ventilation and drainage of the middle-ear cleft.

As the naso-pharyngeal mucosa is invariably septic in cases of chronic purulent otitis media, regular lavage or spraying with alkaline antiseptics should be the rule, and this even after the performance of intra- or extra-meatal operations.

I would particularly draw attention to the *rôle* played by nasal accessory sinus suppuration in causing and in maintaining purulent disease of the middle ear. In like manner the presence of nasal and naso-pharyngeal atrophic rhinitis is not to be overlooked as a factor of importance in maintaining purulence owing to the disappearance of all lymphoid elements and the consequent absence of phagocytes.

The existence of carious teeth at times retards the arrest of a middle-ear discharge. Personally I consider it as of just as much importance to have a hygienic mouth as it is to have a hygienic nose. The constant contamination of the aural and pharyngeal secretions by carious teeth and the tainted air inspired through the mouth is, to say the least, unlikely to be beneficial to the morbid ear or ears.

In several of my own cases of chronic otitis media and in a large number of cases observed by Mr. Wyatt Wingrave the *Spirochaeta dentalis* and the *Bacillus fusiformis*, either together or separately, and certain other mouth organisms, were found, thus confirming the belief of the inter-dependence, to some extent at least, of the one lesion upon the other.

Having secured free drainage from the tympanic cavity and having placed the contributory paths of possible infection in as healthy a condition as is possible, we have now to decide as to what form of local treatment is to be employed in any particular case.

As all treatment should, so far as is feasible, be based upon scientific rather than empirical principles, a detailed examination of a droplet of pus taken from the infected region should, first of all, be made to determine if possible the nature and the extent of the inflammatory process.

For some time past, and recently in conjunction with Mr. Wyatt Wingrave, I have made a careful microscopical examination of the discharge from chronic septic cases, and as a result have gleaned information which has been of great practical value. The method adopted has been as follows: Antiseptic treatment having been entirely stopped for a few days, the meatus is carefully mopped out by means of sterilised wool. Discharge is then drawn from the middle-ear cleft by means of a suction apparatus. A drop of this discharge is then placed upon a cover slip. Another cover slip is placed over this droplet and pressure is applied. The two cover slips are separated by a gliding motion, the smear thus obtained slowly dried, stained, and examined for organisms, and for cytological evidence. The characteristics of the cellular elements are first taken into consideration, and afterwards the bacteriological findings. Provided the cytological examination reveals an extensive leucocytosis, with, in addition, degenerated, columnar epithelial cells and but few lymphocytes, the conclusion to be come to is that the process is superficial, exudative, limited to the mucosa and capable of arrest by means of efficient local treatment. On the other hand, the presence of a number of lymphocytes is indicative of granulomatous changes in the mucosa, changes which suggest an extension of the inflammatory process to the deeper layers of the mucosa, and changes which are unlikely to be arrested by any form of purely local medication.

The finding of large numbers of flattened polyhedral "acid-fast" squames is diagnostic of cholesteatomatous degeneration, antral or tympanic.

In like manner an analysis of the organisms found is of immense practical importance. The various micrococci have very varying degrees of pathogenicity, and thus of practical importance.

The most virulent organisms in my experience are the diplococci, including the Gram — cocci, viz. Weichselbaum's meningo-coccus, the gonococcus and the *Diplococcus catarrhalis*, and the Gram + pneumococcus. The well-known proclivity of these organisms to produce intra-cranial complications demands their immediate suppression.

Next in order of virulence comes the *Streptococcus pyogenes*, an organism with inherent potentialities of causing severe, and often fatal, complications, and demanding surgical intervention for its removal.

The staphylococci, very common organisms in middle-ear exudations, are undoubtedly much less virulent, although often most troublesome to dislodge. In such cases continuance of purely local treatment is quite justifiable, and often successful, especially if the opsonic index can be raised by a few injections of a staphylococcal vaccine.

Certain discharges from the middle-ear cleft will be found to contain practically no cell elements. In such cases the discharge is often profuse, thick, and foetid. Microscopically it consists chiefly of amorphous granules, and swarms with all kinds of bacteria, many of them "acid-fast."

Such a discharge is simply "pocketed," and disappears after drainage and sterilisation of the infected cavity.

The information derived from a cytological and bacteriological examination of the discharge from the middle ear appears to me to be of so much practical value as to entirely overshadow the former more or less generally accepted "time-limit" method of dealing with these cases. In the first place, the treatment of these obstinate cases of middle-ear suppuration is placed upon a scientific basis, and, in the second place, there is, in a given case, a certain assurance that an operation is necessary—an assurance which is by no means always forthcoming if the mere duration of purulence be the sole criterion.

It must be recognised that a careful cytological examination demonstrates at times that chronicity—in the scientific acceptation of the term—may occur at a comparatively early stage of the disease, and that deep-seated changes may be taking place in the mucosa in parts hidden from actual objective examination at a much earlier period than is usually thought to be the case.

It is also possible by this method of examination to differentiate between those cases which may be classified as dangerous and those which are not dangerous. To the former, or dangerous class, belong those cases of chronic purulence where the *Diplococcus intra-cellularis* or the *Streptococcus pyogenes* are the predominating organisms, where lymphocytes are found in abundance, together with myelocytes, and where the epithelioid elements—"acid-fast" squames—indicative of cholesteatomatous degeneration, crowd the field; to the latter, those cases where the infective organisms are mainly staphylococci, and where there is an abundant supply of living leucocytes.

To epitomise the discovery in the discharge of lymphocytes and epithelioid cells is presumptive evidence of granulation-tissue formation; of lymphocytes, epithelioid cells, and myelocytes of an osseous lesion; of lymphocytes and "acid-fast" squames of cholesteatomatous changes; whilst the presence of lymphocytes, epithelioid cells, myelocytes, and giant-cells is indicative of tuberculous disease of the temporal bone.

In every case more than one cytological examination is desirable before drawing any definite conclusions.

The two conservative methods of treatment in everyday use are—the wet and the dry. Certain circumstances favour the employment of the former, certain other circumstances the latter. The following points should be taken into consideration in deciding this question :

- (1) Is the discharge profuse ?
- (2) Is the discharge foetid ?
- (3) Is it possible to see the patient at frequent intervals ?
- (4) Is the patient of sufficiently cleanly habits to be entrusted with the carrying out of his own local treatment ?

Where discharge is profuse there need be no hesitation in recommending fluid treatment, frequent and copious irrigation, and the instillation of antiseptic lotions. The particular form of antiseptic employed is of comparatively small moment so long as the drug employed does not act as an irritant to the tissues of the middle or external ears. Personally I have a strong leaning to the employment of solutions of carbolic acid. Its penetrating qualities, its antiseptic action, and its analgesic effect upon the inflamed tissues of the middle ear, render it an ideal drug for the purpose in hand.

Preparations of boracic acid, mercury, hydrogen peroxide, creolin, resorcin, formalin, permanganate of potash, salufer, etc.,

are all useful. With a Wyatt Wingrave's syringe and an abundant supply of a warm antiseptic solution much good may be effected. After copious irrigation the external meatus should be filled with a warm antiseptic and astringent solution, which should be allowed to remain *in situ* for ten to fifteen minutes at least twice a day. Experience, perhaps more than anything else, will indicate the type of lotion to be used in one case—to be avoided in another. Experience also indicates that an occasional change of drug has a salutary effect upon the chronically-inflamed mucosa.

In infants and young children the fluid method of treatment is the simplest and the best borne.

The main disadvantages of a long-continued fluid method of treatment are that an oedematous condition of the mucosa, with the formation of flabby granulations, is encouraged, whilst an increased osmosis from the minute blood-vessels and an increased flow of glandular secretion result.

Where, on the other hand, the discharge is not profuse, where good drainage exists, and where the patient is readily accessible, there is much to be said in favour of the dry method of treatment, either the insufflation of one or other antiseptic powder, or tamponading with wicks of antiseptic ganze.

On general principles it is desirable to treat septic disease of the middle ear upon the same lines as septic disease elsewhere in the body. The constant re-infection which must take place where patients are allowed to manipulate their own ears appears to be one of the strongest arguments against leaving the treatment of middle-ear suppuration in the hands of the laity. The more I see of practice, both hospital and private, the more favourably impressed am I with the advantages of the dry method of treatment. When employed in suitable cases, that is, where the amount of discharge is not very profuse, where there is good drainage, and where the patient is under observation, I believe it to be the most efficacious, the most speedy, and the most scientific method of treatment. Such powders as boracic acid, europhen, dermatol, aristol, xeroform, are the ones I have found most generally useful. Iodoform, owing to its disagreeable odour, its tendency to form almost solid deposits in the middle ear and to promote exuberant granulation tissue, is better avoided.

Ganze wicks made of iodoform or cyanide gauze and packed loosely into the ear are particularly efficacious, acting not only as excellent drains but also as efficient protectors against external

sources of infection. In addition an antiseptic dressing should be worn over the affected ear.

There can be no doubt that a large number of cases of chronic septic disease of the middle ear yield fairly readily to an intelligently planned and carefully carried out system of conservative local treatment. It is equally true, however, that there are vast numbers of patients seeking relief whose middle ears are in a deplorably unhealthy condition, whose function of hearing is seriously impaired and likely to be still further impaired by a continuance of suppuration, and whose lives are hanging in the balance. In such cases the surgeon's task is a peculiarly difficult one. On the one hand the septic disease must be got rid of, on the other hand the function of audition must be carefully conserved. Where polypi—as distinguished from exuberant bone granulations—are present, their removal should be immediately effected. This may be accomplished by snare or forceps, or by the injection of rectified spirits or an alcoholic solution of formalin.

Following the removal of the growth some form of caustic application should be applied to its base. In my hands nothing has given so much satisfaction as chromic acid applied upon the end of a cotton-tipped probe. Antiseptic lotions containing rectified spirit should be used regularly afterwards or ganze packing lightly applied until suppuration has ceased.

In many cases, however, notwithstanding persistent and careful local treatment, suppuration persists. To what is this due? Have we to deal with some deep-seated bone lesion, or is it merely a peculiarly chronic infection of the mucosa of the middle ear cleft and adjacent sinuses?

The most careful objective examination will in many cases fail to detect the presence of any bone lesion, and subjective symptoms indicative of its presence are conspicuous by their absence. It is in cases of this kind—cases of chronic purulence without definite evidence of bone disease—that a cytological and bacteriological examination of the discharge yields information useful alike from the point of view of diagnosis and of treatment.

In the treatment of cases of suppuration of the middle-ear cleft much will depend upon the situation of the existing perforation—whether it be in Shrapnell's membrane or in some portion of the membrana tensa.

Epitympanic suppuration is peculiarly troublesome and peculiarly liable to drift into chronic disease, and to be complicated by caries of the ossicular chain and outer attic wall, and by the forma-

tion of tufts of exuberant bone granulations. In addition, epitympanic suppuration is frequently accompanied by the formation of cholesteatomata, which materially influence the progress and the prognosis of the case.

The high situation of the perforation, the frequent shutting off by inflammatory adhesions of the epitympanum from the tympanum, and the imperfect drainage from the infected area induces chronicity and involvement of bone.

In such cases frequent intra-tympanic syringing with one or other of the specially-constructed intra-tympanic syringes in ordinary use is essential. Enlargement of small perforations of the membrana Shrapnelli is called for, followed by the intra-tympanic injection of such drugs as iodoform emulsion, peroxide of hydrogen, permanganate of potash, boric acid, etc.

Haug (*Arch. of Otol.*, vol. xxxiv, November 6) has obtained excellent results in epitympanic suppuration by means of the following method of treatment: The attic is first cleansed with a solution of permanganate of potash or boric acid. A solution of perhydrol in equal parts of alcohol and glycerine is then injected and retained for fifteen minutes. A pledget of wool soaked in iodine potassium iodid glycerine is then inserted and the meatus plugged with gauze. If necessary, the application is repeated in about ten days.

For the breaking up of an attic cholesteatoma the injection of a solution of salicylic acid in alcohol or in anilin oil is excellent.

The unsatisfactory results so frequently obtained from the local treatment of chronic tympanic and epitympanic suppuration have led to the introduction of various operative measures for their relief, such as removal of the malleus and incus, removal of the outer attic wall, and removal of the ossicular chain and outer attic wall, followed by curetting of the attic mucosa.

Were it possible to gauge accurately beforehand the extent of the implication of the surrounding bony parietes, such operative procedures would be very much more successful than they usually are. It is quite impossible, however, in the present state of our knowledge to settle this point without having recourse to a free exposure of the attic, the iter and the antrum, hence these minor operative procedures frequently fail because operations of a more radical nature are really demanded. Consequently I see no reason why exploratory opening of the posterior end of the middle ear cleft should not in cases of doubt become a recognised method of procedure.

The question arises: Is it worth while to perform an ossiculectomy and remove the outer attic wall? My experience has been that when smears taken from the deeper regions of the epitympanum reveal large numbers of lymphocytes and myelocytes together with infected "acid-fast" squames, the only treatment of permanent value is the performance of a Küster, a Stacke, or a Schwartz-Stacke operation.

Where, on the other hand, lymphocytes are very sparingly present, where there is a generous leucocytosis and an absence of myelocytes and "acid-fast" squames, the removal of the ossicular chain with, or without, the removal of the outer attic wall is a procedure well worth trying and likely to be attended by successful results.

There are certain cases of an urgent and dangerous nature where there need be no hesitation and no delay in performing a complete radical operation, *e.g.* cases of intra-cranial disease secondary to chronic middle-ear suppuration, cases of extensive mastoid caries with fistula, cases of labyrinthine suppuration, etc.

On the other hand, there are many cases of tympanic suppuration where the bone complication is apparently limited, where no urgent symptoms are present, but where there is constant danger from possible extension of disease or impending pyo-septicaemia. Treatment in the form of anti-septic lotions, or insufflations, or the local application of mineral acids is, in my experience, distinctly disappointing. Curetting what is apparently localised disease through the meatus is inexact, as a rule is insufficient, and always possesses an element of risk.

It is a vexed question how far one is justified in attempting to deal with such carious foci through the meatus. My own experience is that the actual extent of bone implication is very rarely accurately gauged by mere inspection, and that when exposed, as so frequently must be done by external operation, it is found to be from two to three times as extensive as was suspected. Formerly I was much impressed by the value of intra-meatal operations in chronic suppurative disease, but must confess to have changed my opinion, and in actual practice now rarely resort to this particular *modus operandi*. Experience, moreover, showed me that recurrence of suppuration was unduly frequent, and this I attributed to incomplete removal of disease at the time of operation.

During the years 1892-1896 I performed both in private and in hospital practice a large number of ossiculectomies in cases of chronic epitympanic suppuration, and also in a fair number of cases

of tympanic suppuration, with a marginal perforation in the upper and posterior quadrant of the membrane. Many of these cases I have had the opportunity of seeing from time to time ever since. In the majority the result was at first excellent; suppuration ceased, hearing improved, tinnitus and vertigo disappeared. Time has, however, shown that the so-called cure has not been a permanent one. In 32 per cent. of the cases of which I have notes suppuration recurred after intervals of from four months to two years, necessitating the performance of a more radical operation.

Theoretically, I admit ossiculectomy and curettage of the tympanic cavity appears an ideal method of procedure. In actual practice, except in cases of isolated caries of the ossicular chain, it has, in my hands at least, proved disappointing. It is only fair to state that certain operators have recorded such favourable results from ossiculectomy and removal of the outer attic wall as to lead them to strongly urge its performance. Mr. Richard Lake, in his recent book, records favourable results. Thus, out of fifty consecutive cases he obtained forty-two cures. He admits, however, that in a certain proportion of cases there is a liability to recurrence.

Mr. Faulder White, of Coventry, has for years past advocated a method of procedure which he calls otectomy, and which consists in removal of the membrana tympani, the malleus, and, in certain cases, the incus. This operation he follows up by very copious irrigation, using about a quart of saline solution four times a day. Provided that the septic process is confined to the cavity of the tympanum and to its mucosa the results from such a method of procedure should be satisfactory. My own experience leads me to believe that in genuinely chronic cases of epitympanic suppuration it is not merely a question of disease of the epitympanic recess and its mucosa, but of the posterior end of the middle-ear cleft and the adjoining accessory spaces.

Those cases which do well as the result of an ossiculectomy—and I must confess that in my experience they have not been numerous—are, I believe, cases where, had a cytological examination been made, lymphocytes, myelocytes, and "acid-fast" squames would have been found conspicuous by their absence. No irrigation treatment is, I believe, capable of arresting the septic process when it has once invaded the deeper layers of the tympanic and epitympanic parietes. It is true that for a time it may produce an apparent cure, but the disease is merely latent, and will recur sooner or later.

In such cases we have as a rule to face the performance of one

or other form of post-aural operation—an operation which, whilst laying bare the area of sepsis, must be of such a character as not to injure the mechanism of audition. There can no longer be any doubt that the removal of the remains of the membrana tympani and the two larger ossicles is not necessarily followed by an impairment of hearing. I would go farther and say that by so doing the hearing power of the individual is frequently much improved. What means have we then at our disposal to enable us to judge when to remove and when to preserve the membrane and the ossicular chain? Where there is no direct evidence that the ossicular chain is diseased, where its movements are free, where lymphocytes are sparingly found in the discharge from the tympanum, and where the hearing power is good, the opening up and drainage of the posterior end of the middle-ear cleft—in other words, the mastoid antrum—and the removal of the greater portion of the posterior meatal wall, with any soft and disintegrating bone in its immediate neighbourhood, and with preservation of the membrane, will in most cases effect a cure of the septic process and an improvement in audition. On looking up my hospital notes I find that from 1897 onwards I have performed many operations upon this principle. The auricle was first thrown forwards, and the postero-superior meatal wall chiselled away so as to open up the iter and the antral cavity, the ossicular chain and the membrane being preserved. The following case is quoted in illustration:

L. M.—, female, aged twenty-three. Right-sided septic otitis media of seven years' duration; perforation of posterior part of Shrapnell's membrane. Operation May, 1897; antrum opened from posterior meatal wall, membrane and ossicular chain preserved; complete arrest of suppuration. Patient seen May 13, 1907: parts remain thoroughly healed; hearing power unaltered.

It must be recognised, however, that there is always a certain risk in leaving the ossicular chain in cases of old-standing purulence. The fact that lacunar bone absorption goes on at times insidiously under an apparently healthy periosteum must not be lost sight of. This most frequently is found to occur in tuberculous cases.

Where, on the other hand, careful palpation with a delicate probe demonstrates ossicular caries, where lymphocytes and myelocytes are found to be numerous, and when the hearing power is very defective, the membrane and the ossicular chain should, in my opinion, be removed.

In many of these last-mentioned cases Stacke's operation answers all possible requirements, and the complete radical

operation is not called for. As the exact extent of disease in the surrounding bone cannot, however, be accurately gauged beforehand, the operator must always be prepared to follow up the various paths of septic infection, and perform what practically comes to be a complete radical operation.

In cases of the type first alluded to, the technique adopted by Mr. Heath will be found to be of service. I use the word technique advisedly because there can be no manner of doubt that his method of operating in no sense constitutes a new operation. In genuinely chronic cases this method of operation must of necessity have very narrow limitations.

The assumption that the "danger zone" lies entirely within the mastoid antrum is a pathological error of the first importance. Every operating surgeon who is conversant with the pathology of temporal bone suppuration is fully alive to the fact that in chronic septic middle-ear disease infected cells are frequently met with as far down as the tip of the mastoid process, that necrosis of the tegmen tympani is not uncommon, and that ossicular caries and caries of the outer attic wall are pathological entities with which to reckon. Notwithstanding this Mr. Heath urges upon the profession, as a routine measure, a method of procedure in which there is an entire disregard of these pathological possibilities, not to say probabilities.

Whether a Stacke's operation or one of its modifications be performed my practice is to keep the patient in bed for from ten to fourteen days, to remove the packing on the fourth or fifth day, and to treat the granulating cavity by the frequent instillation of a saturated alcoholic solution of boracic acid or by daily insufflations of pure boric acid. I am satisfied that rest in bed for at least ten days is of advantage to the patient and assists in the formation of healthy granulation tissue, whilst I am equally satisfied that prolonged packing promotes the formation of soft cedematous granulations upon which epithelium finds a difficulty in living. Where the wound in the bone is not of any great dimensions it is unnecessary to graft, but where, on the other hand, a considerable area of the surrounding bone has had to be removed, grafting is, I hold, a very valuable adjunct to the healing process, and does not, in my experience, injure audition.

Treatment by Bier's method of congestive hyperæmia has given such excellent results in cases of acute, septic middle-ear disease that it is but natural that it should also have been tried in cases of chronic purulence, with or without mastoid complications.

Unfortunately the results in chronic cases have so far not been very successful. This, no doubt, is due in part, at any rate, to a faulty selection of cases for treatment. Hyperæmisation can effect no possible good in cases where dead bone is being thrown off or remains as a sequestrum, or where a cholesteatoma is present.

If, however, a careful cytological examination of the pus from the diseased middle ear be first of all made, and if it be found that "acid-fast" epithelioid cells diagnostic of cholesteatoma and myelocytes indicative of a breaking down of the cancellous bone around the infected tympanum are absent, a small percentage of chronic cases will be found to yield to this particular line of treatment. My experience of hyperæmisation in chronic, septic otitis media, without demonstrable bone lesion, is that free drainage from the middle ear should first of all be provided, that granulation polypi should be removed, and that the constriction of the cervical vessels should be kept up almost continuously.

To relieve the headache, which is so frequent in cases of chronic middle-ear disease, I have found lumbar puncture of considerable value. The main indications for its employment are in those old-standing cases where, in the absence of objective indications of local retention of pus, headache, mental hebetude, and occasionally slight vertigo are complained of.

There is a type of chronic purulent disease of the middle ear occurring in infants and young children, produced by a specific organism and attended by such early destruction of tissue, that even in the absence of any definite implication of bone early operative interference is necessary. I refer to gonococcal otitis media or otitis purulenta neonatorum.

Ophthalmologists have for long recognised the existence of ophthalmia neonatorum, and have laid down very stringent rules as to its treatment. Aural surgeons have not in the past, I think, sufficiently recognised a corresponding disease of the tympanic mucosa, common in infants, and remarkable alike for its power of destroying the delicate tissues of the middle ear, for disintegrating the petromastoid, and for producing labyrinthine complications. The essential and the causative agent in producing the disease is the gonococcus occasionally found in pure culture, more usually, however, in conjunction with other cocci. Given a diagnosis of otitis purulenta neonatorum, no time should be lost in opening the posterior end of the middle-ear cleft, in securing and in maintaining free drainage.

Tuberculous disease of the middle ear and its adnexa presents

many peculiarities both clinically and therapeutically. Perhaps the most prominent symptom of the disease is its painless, asthenic, and chronic course. There can be no question that tubercle may lie latent in the cavity of the middle ear for long periods without producing any symptom of moment. If, however, a secondary infection ensues, the hitherto dormant tubercle is roused into activity, rapid breaking down and disintegration result, accompanied by extensive carious or cario-necrotic bone-lesions. The question whether such tuberculous changes are ever primary in the middle-ear cleft does not particularly concern us at present. The point at issue is the method of treatment most likely to be efficacious.

Local measures in the form of lavage, instillation of antiseptics or of such drugs as lactic acid, iodoform, iodol, etc., have been tried, and have almost invariably been found to be wanting.

In a few cases of chronic tuberculosis of the petro-mastoid I have obtained good results by the cautious subcutaneous injection of Koch's Tuberculin T.R. The opsonic index having first of all been taken, and it is in these cases generally low, injections of tuberculin are made every three days, and the local reaction carefully watched.

Apparently the only measure likely to be beneficial, capable of arresting bone disintegration and preserving the continuity of the ossicular chain, is retro-auricular drainage. No set operation, no extensive operation is advisable. The general asthenic, debilitated, and often cachectic condition of the patient negatives this. A free retro-auricular opening, the maintenance of drainage, and the removal of necrotic areas of bone will be found to answer better than the performance of any typical operation such as the Stacke or the Schwartz-Stacke.

In tuberculosis of the middle ear, secondary to advanced pulmonary tuberculosis, operations of any sort are generally contraindicated on the ground that the general condition of the patient is not such as to stand any prolonged operative interference. Whilst no doubt this view is, as a rule, correct, I am satisfied that there are cases where retro-auricular drainage is advisable, and where much benefit, both locally and constitutionally, arises as the result of the improved drainage thereby effected.

The points, therefore, which appear to me to be of special value in the treatment of chronic purulent disease of the middle ear are :

(1) The securing of free drainage from the infected middle-ear cleft.

(2) The treatment of any lesion of the upper respiratory or buccal tracts likely to interfere with the drainage or the ventilation of the middle-ear cleft or likely to cause its re-infection.

(3) The value of a cytological examination of discharge from the infected ear in assisting in the determination of operative *versus* non-operative treatment.

(4) The post-auricular exposure of the posterior end of the middle-ear cleft and the following up of the paths of septic infection thereby brought into view.

AN ADDRESS

ON

OPERATIVE TREATMENT IN MIDDLE-EAR DISEASE— AN HISTORIC RETROSPECT.¹

BY WILLIAM HILL, M.D., B.Sc.,

Surgeon for Diseases of the Ear, St. Mary's Hospital.

DR. WILLIAM HILL, who spoke from notes, expressed himself as in cordial agreement with Dr. Milligan regarding the value of local medication which, if really efficiently carried out, would lead to a practical cure in a large proportion of uncomplicated cases of chronic suppuration, without resort even to intra-meatal surgery. There were, however, great difficulties in the way of attaining any approach to efficiency in out-patient practice, and even in dealing with private patients brilliant results were rarely obtainable in very chronic cases, unless the case was seen almost daily for two or three weeks by a practitioner *au fait* at intra-meatal treatment, and supplemented by the services of a skilled nurse, who could attend to the aural toilet at least thrice daily with the aid of the mirror and speculum. Where patients could be persuaded to submit to such a course of efficient treatment, a large proportion of gratifying results could be recorded. Unfortunately, in hospital practice, beds were rarely available for chronic cases, other than those requiring urgent operative treatment. With these remarks he must unwillingly dismiss the important, and even fascinating, non-operative aspect of this subject, and approach that

¹ Introduction to a discussion in the Section of Laryngology and Otology of the British Medical Association, Exeter, July, 1907; by kind permission of the Editors.

part of this discussion which the President of the Section had done him the honour of asking him to more especially focus their attention, viz. the minor and major surgery of chronic suppuration of the tympanum and its adnexa. The subject can conveniently be considered under three heads, viz. (1) the necessary removal, by way of the meatus, by means of curettes, snares and forceps, of granulations, polypi, loose ossicles and sequestra; and of incisions in the membrane the better to get at granulations at the tympanic orifice of the Eustachian tube, and in other areas accessible by such means to inspection. These procedures presented little room for controversy, and might be conveniently ruled out of this discussion. With regard to (2) per-meatal ossiculectomy with or without atticotomy, there was still want of unanimity of opinion, and though these measures were only exceptionally resorted to by the highest otological authorities, the time was perhaps ripe for a re-opening of this question. It had been intended to limit this discussion to the intra-meatal surgery of chronic otorrhœa, but in view of the sensational claims recently put forward as to the value of post-auricular meatal antrotomy and of a *mitigated* form of the radical operation it was deemed opportune to include the consideration of (3) post-aural operations other than the *complete* radical operation. The question of intra-nasal and post-nasal medication and surgery, the importance of which within reasonable limits was unquestioned, might also be conveniently dismissed as non-controversial.

Ossiculectomy, with removal of most of the remains of the membrane, might, on theoretical grounds, appear to be the ideal operation, in most chronic cases, for securing good drainage of the attic and antrum, and for the better carrying out of the intra-tympanic and other local medications; in practice, however, ossiculectomy, it is contended, has only a limited field of usefulness in chronic middle-ear suppuration on account of the tendency, in certain conditions, to the formation of diaphragms and to regeneration of the membrane and of the production of adhesions which often increase deafness and impair drainage. The operation, though easy, is not absolutely free from danger—the speaker's experience includes one case of partial facial paralysis and one case of fatal sepsis (pneumonia).

The meeting was asked whether it was not generally undesirable to perform ossiculectomy under the following circumstances: (a) When the perforation is small—in these cases adhesions and reformation of membrane is prone to result. (b) In cases with a

large reniform perforation with a shortened manubrium and with no adhesions or granulations evident and with good drainage. This condition is often the result of scarlet fever; the incus is usually absent, and the hearing is often good. It is contended that mere ossiculectomy is uncalled for in this condition, and if local medication fails to cure suppuration a post-auricular operation should be considered. (c) Where there is good hearing in spite of chronic suppuration. Here, should really efficient local and hygienic treatment fail, some post-aural operation, *e.g.* of the type of Küster, or of the *mitigated radical*, stopping short of myringectomy, as recommended by Stacke, Hartmann, Siebenmann, Scheibe, Jansen, and others eight years ago, and more recently by Malherbe, Jakins, Grant, Heath, and others, is preferable to per-meatal ossiculectomy. (d) In cholesteatomatous conditions intra-meatal operations are not as efficient as Stacke's or some form of radical procedure, and are not free from risks. (e) In necrosis of the meatal walls, especially where there is a sinus leading into the external wall of attic or into the squamous cells on the roof of the meatus, nothing short of a post-aural radical operation is likely to be of permanent benefit.

On the other hand, ossiculectomy appears to be a justifiable (though uncertain) procedure as a *tentative* measure, which in some few instances proves curative, in the following conditions: (1) In attic disease, with perforation of the membrana flaccida, with or without intra-tympanic granulations and evidence of ossicular necrosis, provided always that there are no bony fistulæ through the external attic wall or on the roof of the meatus, and that there is a large perforation in the membrana tensa. (2) In evident displacements of the malleus, or of the incus, or of both, with or without granulations, always provided there is not much membrana tensa remaining. (3) In large perforations of the membrana tensa, with or without granulation, but with intermittent stopping up of discharge and recurrent headache. (4) In large perforations where there is no marked obstruction to discharge, but where granulations are seen high up in the tympanum and surrounding the ossicles.

Per-meatal atticotomy (usually combined with ossiculectomy) is not believed to be often practised at the present day, though in recent years it has been resuscitated by Faulder White and strongly advocated by him. It is a question worth discussing whether this operation is advisable even in attic disease, in view of the real though slight danger of wounding either the facial nerve

or the internal ear, dangers which are far less likely to happen in the more open radical operation.

Intra-meatal ossiculectomy, with or without atticotomy, has been taken up with a certain degree of enthusiasm by most aural surgeons at some early period of their career, but, with the exception of Dench and Faulder White and a few others, the operation as a routine measure has been abandoned. Cheatle (1898), Grant (1899), and Lake (1900), in this country have given the operation an extensive trial, and now only exceptionally perform it, preferring the more thorough radical operation when the case does not yield to efficient local medication. The speaker had found that in cases where the *immediate* results were fairly satisfactory as regards improvement to hearing and cessation or mitigation of discharge, yet there has, after a few months, been regrettable relapses both in hearing and discharge, the last state being worse than the first; for the reason, of course, that there has been regeneration of membrane and formation of adhesions, and because the limited operation did not touch the fringe of the disease. Lucae and Hartmann in Berlin have the same experience to record, and Politzer says that "on account of the limited success he had obtained from this operation he must coincide with the view of Noltenius that by extraction of the ossicles a lasting cure is infrequently obtained, as often after months or years the suppuration recurs." Faulder White, on the other hand, claims an unusual measure of success from these intra-meatal operations, which he groups together under the inconsequent and decidedly original name of "otectomy." Twenty beds for hospital patients and specially trained nurses for private ones are mentioned by White as probable factors in his success.

As there appears to be a deplorable lack of information in certain quarters concerning the evolution of the operative surgery of chronic middle-ear suppuration and the special contributions of individual workers, the following tabular summary should prove useful to those desiring to refresh their memory on this aspect of the subject.

CHRONOLOGY OF MEATAL OSSICULECTOMY.

1873-1884, Schwartze introduced ossiculectomy + partial myringectomy.

1885, Kessel performed ossiculectomy + complete myringectomy + removal of annulus tympanicus.

1885, Loewenberg and Stacke (published in 1888) adopted identically the same operation as Kessel.

1886, Sexton in America, and in 1889, at Leeds, Sexton advocated this method at the meeting of the British Medical Association, and showed his instruments.

1889, Stacke introduced post-aural inter-meatal atticotomy + Kessel's operation.

1890, Hartmann performed per-meatal atticotomy with special chisel + ossiculectomy + Kessel's operation.

Cheatle, in 1898, Dundas Grant and Faulder White, in 1899, Lake, in 1900, made contributions to the subject in this country.

From 1890 onwards radical post-aural methods became general, and per-meatal ossiculectomy and atticotomy have now become quite exceptional rather than routine measures. By some leading otologists, *e. g.* Politzer, Lincae, Hartmann, and others, per-meatal ossiculectomy has been almost abandoned.

Original ossiculectomy instruments have been contributed by various operators as follows: (1) Schwartze, tenotome; (2) Hartmann, attic chisel; (3) Luer, attic chisel forceps; (4) Lüdewig, incus hook; (5) Delstanche, combined malleus extractor and tenotome; (6) Sexton, special set of instruments for ossiculectomy.

The first advance on the incision of WILDE, which too long held the field, was made by SCHWARTZE, in 1868, who attacked the mastoid cells in the first instance, and later made the temporal antrum a part of the objective. This was the method generally practised for many years in *acute* mastoid disease, and is still adapted to acute disease in infants. The next accepted improvement was due to KÜSTER, who from 1879 to 1889 advocated and practised "radical removal" of the posterior region of the osseous meatus in addition to Schwartze's excavations. His results were published in April of 1889, at which time a large number of operations on Küster's lines had been performed in Berlin. Küster's operation did not up to 1889 definitely include the opening up of the squamous cells at the roof of the meatus, but in 1890 he adopted von Bergmann's practice in this particular. Meanwhile, closely following on Kuster's communication to the Berlin Medical Society, STACKE, in August, 1889, described his inter-meatal method of opening first the attic and then the antrum by a post-aural operation performed *between* the membranous and bony meatus, and which at first, at all events, did not include more than a partial removal of the osseous meatus adjacent to the antrum. In the same way that Küster's operation was

related to that of Wolf (1878), so Stacke's original operation was suggested by Schwartze's *intermeatal* operation for the removal of foreign bodies impacted deep in the meatus. This Stacke operation is now obsolete, as is also the same procedure followed by Schwartze's mastoido-antrotomy, the Stacke-Schwartz operation, which has been superseded by the Schwartze-Küster-Stacke operation, the attic being exposed at the end rather than at the commencement of the operation. The evolution of this operation, which, when combined with Kessel's removal of the membrane annulus and ossicles is known as the "*complete radical operation*," is shown in the following tables :

SCHEME OF STACKE'S TENTATIVE OPERATIONS, NOW OBSOLETE.

- (1) Stacke (I), post-aural intermeatal ossiculectomy + atticotomy (copied incisions of Schwartze operation for extracting foreign bodies and sequestra).
- (2) Stacke (II) or Stacke-Woolf, = post-aural intermeatal ossiculectomy + atticotomy + antrotomy by removing inner end only of posterior meatal wall.
- (3) Stacke (III) or Stacke-Küster, = post-aural intermeatal ossiculectomy + atticotomy + removal of all posterior wall. This was an inverted "radical"; now almost obsolete.

POST-AURAL OPERATIONS.

1861, Wilde's incision.

1868, Schwartze (I), mastoidectomy. Schwartze (II), = mastoidectomy + antrotomy.

1879, Küster (I), complete postero-meatal antrotomy.

1879-89, Schwartze-Küster, or Küster (II), mastoidectomy + antrotomy + removal of posterior wall of meatus.

1890, (III) Küster-Bergmann, included all the Küster (II) + removal of some of superior meatal wall, including exposure of squamous cells + in some instances ossiculectomy and myringectomy.

1891, Schwartze-Küster-Bergmann-Stacke (otherwise called "the radical Stacke" (III), or, more briefly, "the radical operation") = mastoidectomy + antrotomy + removal of posterior meatal wall + removal of some of superior meatal wall, including exposure of squamous cells + atticotomy (with or without myringectomy and ossiculectomy).

This latter is, when combined with ossiculectomy, etc., the "complete radical operation" as finally adopted in principle by Schwartze, Küster, Bergmann, Stacke (1890), Zaufal, Hartmann, Politzer, MacEwan, Barker, etc.

The Küster-Bergmann operation was the *perfected* or complete Küster finally adopted in 1890, and is here alluded to for short as "Küster's operation." It will be observed that Küster's name is associated with three operations (excluding his share in the "radical operation"), namely, with (1) complete postero-meatal antrotomy (the pure Küster), and (2) with the combined mastoidectomy of Schwartze + complete postero-meatal antrotomy of Küster (these were both alluded to in Küster's original paper), and (3) with the Küster-Bergmann operation, the superior wall and cells being removed, as practised by von Bergmann, in addition to the ordinary bone removals originally performed by Küster.

CONTRIBUTIONS TO THE IMPROVED POST-AURAL TECHNIQUE.

- (1) Preserving membranous meatus . . . Stacke.
- (2) Incision along post-auricular groove . . Küster and Stacke.
- (3) Suture of posterior wound . . . Stacke.
- (4) More radical removal of lower part of "bridge" as far as facial canal . . . Jansen.
- (5) Applying small grafts to bony excavation ?Hessell.
- (6) Large grafting operation . . . Ballance.

At the meeting of the German Otological Society at Hamburg, in 1899, *conservation of the membrane and ossicles in cases of good and of moderate hearing* was definitely postulated by Stacke, Hartmann, Siebenmann, Jansen, Scheibe, and others. Since then this mitigated variety of the radical operation, *i.e.* minus myringectomy and ossiculectomy (*i.e.* the "Stacke radical" modified) and usually also minus atticotomy (*i.e.* the Schwartze-Küster operation, often called for short the Küster operation) have become the recognised practice for conserving hearing in less severe cases. Malherbe, Jakins, Grant and others have made contributions in this sense in this country subsequent to 1899, and these *mitigated operations*, to coin a new term, have, in selected cases, been the routine practice here by the speaker and others.

It will be seen that the complete removal of the annulus tympanicus and membrane together with the malleus and incus (tympanic evisceration) has not for many years been an absolutely essential part of the radical operation, but on the contrary

conservation of these tympanic structures has, in suitable cases, been unequivocally advocated and practised abroad as well as in this country.

The *complete radical operation* has, however, it would appear, been too exclusively and far too frequently adopted in some quarters here to the exclusion of the more conservative measures of Küster and Bergmann, and of the *mitigated radical operation* previously alluded to, and the swing of the pendulum may be clearly recognised even in the indiscriminating support which Mr. Heath has received from certain specialists in his recent advocacy of a more conservative type of operation; a type not in any sense originated by him, though slightly modified—in the opinion of the speaker quite uselessly and unjustifiably modified—by the removal of healthy tissues from the outer end of the floor of the meatus, remote from the diseased areas. This can scarcely, by any stretch of the imagination, be described as either a new or even conservative measure, even if we throw in the employment of a special nozzle to the antral syringe. It is to be hoped, however, that too much will not be expected from these *mitigated* operations, for in most chronic cases where operation is really needed relapses will be frequent unless the *complete* radical operation is performed, and when these mitigated or other surgical measures are adopted for mere suppuration it is not always possible to discriminate between cases which have improved *on account of operation* and those which have done well *in spite of operation*, the benefit being due in reality to the efficient aural toilet rendered possible by supervision in hospital or surgical home.

BIBLIOGRAPHY.

WILDE.—*Med. Times and Gaz.*, vol. i, 1861.

SCHWARTZE U. EYSELL.—*Arch. f. Ohrenheilk.*, vol. vii, 1878.

WOLF.—*Berlin. klin. Woch.*, s. 205, 1877.

LUCAE.—*Berlin. klin. Woch.*, 1878.

KESSELL.—*Arch. f. Ohrenheilk.*, vol. xvi, 1885.

KESSELL.—“Correspon. d. Allegeim,” *Artz. Verein u. Thuringen*, No. 9, 1887.

LOEWENBERG.—*L'Ann. Medicale*, 1885.

KÜSTER.—*Deut. med. Woch.*, April, 1889.

STACKE.—*Arch. f. Ohrenheilk.*, 1888, and vol. xxvi, 1889; vol. xxxi, 1891; “Proc. Int. Med. Cong., Berlin,” 1890; and “Assoc. German Natual.” 1891, p. 254.

JACOBSON (on Küster).—*Arch. f. Ohrenheilk.*, vol. xxviii, 1889, p. 286.

GRUNERT.—*Arch. f. Ohrenheilk.*, vol. xxxiii.

ZAUFAL.—*Proc. Assoc. of German and Swiss Nat.*, May, 1890; *Proc. North German Nat.*, 1890; *Sitzbericht Verein Deutsch. Artz im Prague*, April, 1890 *Arch. f. Ohrenheilk.*, vol. xxxviii, p. 38; *et seq.*, 1894.

MILLIGAN.—*Lancet*, 1892.

ALLEN.—“The Mastoid Operation,” New York, 1893.

BURNETT.—*Arch. of Otol.*, 1891, and *Am. Journ. Med. Sci.*, 1898.

SEXTON.—*Arch. of Otol.*, vol. xx, p. 95; *Brit. Med. Journ.*, 1889.

HARTMANN.—*Zeitsch. f. Ohrenheilk.*, 1891.

FIELD.—“Diseases of Ear,” 1893, p. 245.

LUBET-BARBON and BROCA.—“Les Suppurations de l’apophyse Mastoïde,” Paris, 1895.

CHEATLE.—*Practitioner*, 1898.

GRANT.—“Proc. Internat. Otolog. Congress,” London, 1899.

FAULDER WHITE.—*Ibid.*, 1899, and “Running Ears,” London, 1906.

STACKE, etc.—*Proc. German Otological Society*, Hamburg, 1899.

LAKE.—*Lancet*, 1900.

JAKINS.—*Ibid.*, 1900.

BALLANCE.—*Med.-Chir. Trans.*, 1900.

POLITZER.—“Textbook,” English translation, 1902.

HEATH.—*Lancet*, August, 1906, and *Brit. Med. Journ.*, July 13 and 27, 1907.

HILL.—*Brit. Med. Journ.*, July 20, 1907.

THE VALUE OF PNEUMO-MASSAGE IN AFFECTIONS OF THE MIDDLE EAR.

By MACLEOD YEARSLEY, F.R.C.S.,
Senior Surgeon to the Royal Ear Hospital.

THE employment of pneumo-massage as a therapeutic agent in affections of the sound-conducting mechanism appears to have been more general on the Continent than in this country, and, so far as I have been able to ascertain, no British otologist has published any results as to its value or the contrary. For the past four years I have been using this form of treatment, in conjunction with other methods, in various affections of the sound-conducting apparatus, and I think that it is now time that some definite opinion should be reached as to its value, and, to that end, I propose to offer my results with the hope of eliciting those of other otologists.

My earliest attempts at pneumo-massage were by means of the Siegle pneumatic speculum and Delstanche’s masseur. With the latter I tried the so-called method of Mink, in which massage is performed under pressure, and gave it up as of no value. Coming to the conclusion that rapidity of vibration was the form of massage most essential, I next used a Siegle speculum worked by a small motor. This was also unsatisfactory, as most of the force was expended on the soft rubber tubing, no matter how thick this was

made. Following this machine, I began to employ Lake's oto-masseur, which I exhibited for him at the Congress at Bordeaux. This I tried by hand-power and by water-power, finding the latter more satisfactory until the larger and more powerful electro-motor masseur, shown by Lake at the May meeting of the Otological Society, was made. This instrument I had been using some time before it was exhibited.

Before proceeding I should like to draw attention to the published opinions of other otologists, notably those of Mink, Burnett, Ostmann, Breitung, Zaalberg, Panse, and Schwabach.

Mink¹ published his observations showing the result of gradual compression in a series of cases. These results he formulated thus:

(1) Only a low pressure is tolerated by the normal ear without painful sensation.

(2) Where the sound-conducting apparatus is impaired, a higher air pressure is comfortably borne, except in acute inflammation, attic suppuration, and atrophy of the malleus.

(3) In oto-sclerosis a constant and increased pressure is always tolerated to a greater degree than in a normal ear.

(4) The close relation existing between the degree of oto-sclerosis and the amount of pressure tolerated may frequently help to verify the diagnosis.

Mink's method is to compress the meatal air by means of a Delstanche masseur until a compression just short of pain is reached, and to massage the ear with the compressed air thus obtained. This procedure I tried in several cases, both of chronic hypertrophic catarrh and oto-sclerosis. Obtaining no result I abandoned it. I have mentioned it here chiefly because, from what its introducer says about the tolerance of increased pressure in affections of the sound-conducting mechanism, it may be thought that such cases may be consequently able to bear a longer piston stroke than a normal ear. This is not the case by any means.

Burnett² considers that pneumo-massage in acute and chronic catarrhal processes is more efficient and less of a shock to the auditory nerve than inflation, that it is more agreeable to the patient, and has the additional advantage of being entirely free from sepsis. He believes that the drawing outwards of the tympanic membrane and malleus, traction on the tensor tympani and restoration of the normal isolation of the auditory ossicles, is

¹ *Laryngoscope*, January, 1900.

² *Arch. of Otol.*, vol. xxviii, 285.

more safely effected by pneumatic rarefaction of the air in the auditory meatus than by inflation.

Ostmann¹ considers that pneumo-massage is indicated in—

(1) Cases of chronic deafness from chronic hypertrophic middle-ear catarrh.

(2) Cases of hardness of hearing remaining after the termination of an acute middle-ear inflammation, as an adjunct to ordinary methods of treatment.

Its contra-indications he puts as :

(1) All acute inflammatory conditions of the sound-conducting apparatus.

(2) In affections of the sound-perceptive apparatus with normal bone conduction.

(3) In middle-ear affections which have led to marked displacement or to extensive atrophy or adhesion of the drum.

Ostmann thinks that the effect of the massage is not due to mechanical concussion alone, but to improvement of the nutritive conditions of the tympanic mucous membrane.

Breitung² noted a marked influence on the subjective auditory sensations in oto-sclerosis produced by very rapid small vibrations. Tinnitus disappeared for a varying number of hours, but never permanently.

Zaalberg³ noted a considerable improvement in hearing in some cases of oto-sclerosis, and says that the tinnitus nearly always disappeared. In 20 out of 79 cases of oto-sclerosis he obtained an essential improvement of subjective noises.

On the other hand, Panse⁴ says that massage is almost always without effect in oto-sclerosis for the reason that it may loosen the incudo-stapedial articulation, and that it has scarcely any effect upon the footplate of the stapes.

Schwabach⁵ published in 1901 observations on 173 cases, 70 of mon-aural, and 103 of bilateral deafness, that is to say, on 276 affected ears. He began his treatment with daily applications of 600 piston-excursions of 2 mm. each. This was gradually raised to 1200 piston-excursions without increasing the length of the stroke. I propose to refer briefly to his results.

Oto-sclerosis, 81 ears, 67 with subjective noises. In 58 out of

¹ *Zeitschr. f. Ohrenheilk.*, Bd. XXXV, p. 287.

² *Arch. f. Ohrenheilk.*, Bd. xliv, p. 201, u. Bd. xlv, p. 39.

³ *Monatschr. f. Ohrenheilk.*, 1900, No. 8, p. 309.

⁴ *Encyklop. d. Ohrenheilk.*, Herausgegeben v. L. Blau, p. 293.

⁵ *Arch. of Otol.*, vol. xxx, p. 283.

67 there was immediate improvement in tinnitus for a few minutes. There was permanent improvement in hearing in 4 ears out of 81 (4.9 per cent.). In 19 out of 67 (28.3 per cent.) there was permanent diminution of tinnitus.

Simple chronic middle-ear catarrh, 46 ears; 18 showed permanent improvement in hearing acuity and tinnitus was permanently improved in 16 out of 35 (45.6 per cent.).

Subacute middle-ear catarrh, 36 ears. Permanent improvement of tinnitus and hearing in 16 (44.4 per cent.). In 7 (19.4 per cent.) permanent improvement with combined massage and inflation.

In cases of influenzal, acute, simple, or purulent middle-ear inflammations which had run their course, in 6 out of 11 ears the final result was very great diminution, or comparative cessation, of subjective noises, and in 6 out of 9 an essential improvement of hearing acuity.

Sequelæ of chronic middle-ear suppuration, *i. e.* dry perforations, cicatrices, and adhesions, 36 ears. Improvement in subjective noises in 22 out of 24. Improvement in hearing in 16 out of 36. Improvement in both tinnitus and hearing in 18 out of 36 (50 per cent.).

Schwabach's conclusions are that massage is of very little value in oto-sclerosis, but that it is to be recommended for tinnitus in simple chronic middle-ear catarrh, in subacute catarrh, after influenzal acute middle-ear inflammations, and in the sequelæ of chronic purulent otitis media.

I now come to my own observations. I have tried pneumomassage in 79 cases, or 152 ears. Of these there were 15 cases (30 ears) of oto-sclerosis, 59 cases (117 ears) of chronic middle-ear catarrh, and 5 cases (5 ears) of deafness due to the sequelæ of middle-ear suppuration.

Let us take the oto-sclerosis cases first, of which there were 15, or 30 ears. By oto-sclerosis I mean those cases, occurring more often in young females, in which one finds a normal, or nearly normal tympanic membrane, sometimes presenting a reddish reflex over the region of the promontory or pelvis ovalis, with a double negative Rinné, loss of acuity for the lower scale, and with bone conduction diminished, or in the earlier stages, increased. Such cases presume ankylosis of the stapes by osteophytic growths about the fenestra ovalis, with or without spongioid foci in the walls of the bony labyrinthine capsule. You will remember that in such cases Schwabach claims permanent improvement in hear-

ing in 4·9 per cent., and in tinnitus in 28·3 per cent. I regret to say that my results fell very far short of his. In one case pneumo-massage caused the subjective noises to cease completely for about fifteen to twenty minutes, only to return with the same intensity. In the first case in which I tried the method it caused vertigo of sufficient intensity to necessitate its abandonment, in spite of the fact that the piston-excursion was not more than 2 mm. In one case both ears were temporarily improved in hearing, whilst the tinnitus was unaffected, and in one other case the hearing was improved in the left ear from twenty-four to eighty-five inches for the whisper and from four and a half inches to six feet for the acoumeter, and this improvement was maintained when I tested the hearing three months later. Beyond these results, which were all in private cases, no benefit was observed in any other instances. With the exception of the one case in which temporary vertigo was noted no ill-effects occurred. In no case was a longer stroke than 2 mm. employed, with a speed of from 1000 to 1500 vibrations in the hand-power instrument, and of 3000 to 6000 on the electro-motor masseur. Starting with half-minute sittings, in some cases this was increased to two and a half minutes. In the case in which improvement ensued and was maintained three months later, the patient had thirty-two daily applications of the hand masseur, starting with half a minute and reaching two and a half minutes after seven days.

It will be noted that the very small results obtained were in private cases; I found no result whatever in hospital cases. I believe this to be because in hospital one's cases of oto-sclerosis are usually far advanced, and their stapedes are already so firmly ankylosed that no vibratory treatment will affect them. The one private case which permanently benefited was in an early stage. I believe that, in conjunction with other treatment, pneumo-massage may possibly prove of value in cases of oto-sclerosis, provided it is applied early in the disease.

Passing now to chronic middle-ear catarrh. My cases numbered 59, or 117 ears, in 86 of which tinnitus was complained of. It was in these cases that I obtained the best results. Permanent improvement in the hearing occurred in 50 ears, and tinnitus was diminished in 40 out of 86 and completely relieved in 20 out of 86. In 5 ears there was fixation of the malleus, and, after that bone had been mobilised under nitrous oxide anaesthesia, I found pneumo-massage of great service in maintaining the recovered mobility. In one of these cases the malleus became refixed,

pneumo-massage not having been used. It was again mobilised and massage started the following day, with the good result that mobility was retained.

In all these cases massage was used as an adjunct to inflation and intra-tympanic injection. In several cases, however, it was not started until other methods, and especially inflation, had been given a trial. In one case catheterisation failed to improve the left ear after a fortnight's daily application, although it greatly improved the opposite ear. Immediately that massage was commenced the left ear began to improve and the hearing acuity was considerably augmented thereby. In one other case other methods of treatment resulted in moderate improvement, tinnitus, which was troublesome, remaining unaltered. On using massage the hearing was further improved and tinnitus ceased. This patient purchased a water-power masseur and finds that it gives her relief whenever she begins to lose ground.

In fourteen cases, or 24 ears, marked improvement only commenced when massage was used, although inflation had been already given a fair trial. From my own observations I am inclined to think that pneumo-massage is of most value in that stage of chronic middle-ear catarrh when the ossicular chain is first becoming restricted in its movements. Contrary to the general expression of opinion I am inclined to look upon para-eustis Willisi in chronic middle-ear catarrh as rather an indication for treatment than a bad symptom.

As regards the application of pneumo-massage, rapidity of vibration is much more important than length of stroke. In any case I would not advise a piston excursion of greater extent than 2 mm., or at most, 2.5 mm. The first application with the hand masseur should last half a minute; with the electro-motor masseur, which at its lowest speed runs 3000 vibrations per second, five or ten seconds are sufficient. Both speed and length of application can then be gradually increased, the latter up to two and a half minutes, the former to 6000 or 9000 vibrations; I have found no advantage in going beyond the latter speed.

Lastly, I have employed massage in five cases (five ears) suffering from deafness due to the sequelæ of middle-ear suppuration. In one of these the result was sufficient to justify giving the case in some detail:

A. B—, aged twenty-nine, consulted me in January, 1904, at the Royal Ear Hospital. Twenty-two years before she had been under a former colleague for discharge from the right ear, and sixteen

years later another surgeon had performed a nasal operation. On examination there was an existing suppuration in the left ear. The right membrane presented a whitish cicatrix apparently adherent to the long process of the incus. The nasal septum was much deflected and the middle turbinals greatly enlarged. The hearing power in the right for the acoumeter was $1\frac{1}{2}$ in., for the voice 1 ft., whisper 4 in. Bone conduction was $-6''$ to the C. fork. Rinné's test gave a negative reaction for the same fork. For air conduction the lower tone limit was reduced, hearing being lost for 3C16, 2C32, and 1C64. The other forks were as follows: C128, $-40''$; C¹256, $-34''$; C²512, $-15''$; C³1024, $-10''$; and C⁴2048, $-6''$.

The nasal condition was corrected by operation, after which the left suppuration yielded to treatment, and an attempt was made to improve the right ear by inflation, without result. This treatment was continued for six weeks, when massage was commenced. Improvement began within a week and two months later tests gave the following results:

Acoumeter 40 in., voice 6 ft., whisper 29 in. Rinné for C and C² both negative. Bone conduction $-5''$, air conduction 3C16, 0; 2C32, 0; 1C64, $-35''$; C128, $-30''$; C¹256, $-24''$; C²512, $-11''$; C³1024, $-10''$; C⁴2046, $-6''$.

During the time that massage was used in this case no other treatment was adopted.

In the four other cases two were instances of adhesions about the ossicles, two were perforations. In only one was there any resulting improvement in the hearing, and this was only slight. Two cases had subjective noises, which were permanently diminished by massage.

Although the number of cases here observed is somewhat limited, I think the results, combined with the reports of other observers, are sufficient to justify further investigation as to the value of this method of treatment. Personally, I intend to pursue the matter, and I have published these results for the purpose of obtaining an expression of opinion from others who have given their attention to the method.

OBSERVATIONS ON THE DETERMINING CAUSE OF THE FORMATION OF NASAL POLYPI.¹

BY EUGENE S. YONGE, M.D.(EDIN.),

Honorary Assistant Physician Manchester Hospital for Consumption and Diseases of the Throat.

At the present time it is considered—I think by most rhinologists—that a *mucous polypus* of the nose is, essentially and in its earliest stage, a patch of mucous membrane which has become oedematous; and that the pedunculated appearance which a polypus commonly assumes is a character not peculiar to itself, but shared with many other intra-nasal swellings and new formations, and chiefly referable to physical causes acting on the primary patch of swollen, oedematous mucosa.

Since a mucous polypus—to which the term “nasal polypus” is now almost invariably confined—is a condition which possesses certain definite characteristics that differentiate it from other intra-nasal swellings, it may be as well to briefly define it. Mucous polypi may be described as new formations arising commonly from some portion of the mucous membrane covering the ethmoidal region of the nose and mainly composed, when fully developed, of a loose network of fibrous tissue. Essentially, however, they consist of the normal tissues of the mucous membrane, the component parts of which are present in varying proportions, more or less altered in character, and associated with serous exudation and round-cell infiltration, and the structures are covered by the epithelium of the parts from which they spring. It is generally recognised that, in the majority of instances, these formations appear in both nasal cavities, at or about the same time, without any manifest local cause which satisfactorily accounts for their occurrence; that they are usually multiple and recurrent; that they are associated, sometimes with accessory sinus suppuration, sometimes with lesions of the underlying bone, and frequently, if not invariably, with an inflammatory condition of the mucous membrane. Moreover, it is usually considered that the typical mucous polypus does not present the characteristics of a true tumour, in the ordinary significance of the term; that it is not composed of granulation tissue (oedematous or non-oedematous), and that it is not merely a pedunculated hyperplasia which has

¹ Introduction to a discussion in the Section of Laryngology and Otology of the British Medical Association, Exeter, July, 1907, by kind permission of the Editors.

undergone a secondary serous infiltration. Clinical and pathological observations have shown, indeed, that the œdema of a mucous polypus is primary, and that, as already mentioned, the pedunculated appearance is secondary or, as in the case of broad-based or sessile polypi, is never developed. The question of etiology centres, therefore, on the determining cause of the initial œdema which represents the first stage of the condition. A number of theories have been advanced to account for this process, and several of them are based on the assumption that the œdema is of an inflammatory nature. In this category comes the supposition that the condition is due to the presence of septic discharges emanating, as a rule, from the accessory sinuses (Grünwald (1)), and the theory that the œdema is referable to disease of the underlying bone (Woakes, Lack (2)). It is impossible, on account of time, to discuss these interesting theories, both of which have gained a considerable number of supporters, but neither of which, in the opinion of many observers, present a complete explanation of the problem of polypus-formation, or one which is entirely free from logical defects.

It is well known, however, that an inflammatory condition of the mucous membrane, whatever its cause may be, is a very common antecedent and accompaniment of polypus-formation, and some observers have considered that this inflammatory condition, combined with the structural peculiarities which are known to exist in the regions in which these "growths" usually develop, is sufficient to account for the incidence of polypi. But in view of the fact that an inflammation of the mucous membrane is obviously present, in varying degrees of intensity and persistence, both in the "polypus regions" and elsewhere, in a great number of cases which do not, at any time, give evidence of polypus-formation, it appears reasonable to conclude that an inflammation of the mucous membrane does not, directly and of itself, lead to the production of polypi, but only indirectly and when it secures the intervention of another factor—the actual proximate cause—the presence or absence of which determines whether the inflamed mucous membrane does or does not undergo polypoid change. Since, therefore, we are concerned, in the discussion of this question, with an œdema of the mucous membrane which has not been shown to be due directly to an inflammatory process, it may be inquired whether any other probable cause of the production of œdema is capable of demonstration.

It is known that œdematosus infiltration may occur, in a part, if

there exists an obstruction to the return circulation, the obstruction being capable, under certain circumstances, of bringing about the increased transudation of serum through the capillary walls which constitutes the oedema. I hold that a condition of this character is to be recognised in the early stage of polypus-formation, and my own view is that the *initial localised oedema*, which occurs in the nasal mucous membrane and is the first stage of the process in question, is a *serous infiltration of the tissues, the result of the obstruction of certain definite capillaries and veins*—in other words, that the oedematous infiltration is due to an obstacle in the efferent circulation which is in relation to the area in which the oedema occurs.

In connection with this hypothesis there are several points to which I must briefly refer: (1) The particular vessels which are believed to become obstructed; (2) the circumstance or process which would be capable of bringing about the obstruction of these vessels; (3) the manner in which the process referred to would effect this, and so lead to an oedema of the mucous membrane; (4) the evidence, derived from observation and experiment, that the process in question is the determining cause of polypus-formation, and the verification of this evidence by clinical and other facts.

(1) *The particular vessels which become obstructed* are the capillaries and veins which are arranged in a close network around the excretory ducts of the mucous glands and, to a lesser extent, those which are arranged around the subsidiary ducts and acini.

(2) *The circumstance or process which causes the obstruction of the vessels* is the distension or cystic dilatation of these excretory ducts and, in all probability to a lesser extent, the subsidiary ducts and acini of the glands, which process I believe, from my own observations, to be the initial essential lesion of polypus formation.

(3) In order to arrive at an explanation of the manner in which obstruction of the vessels could be effected by mechanical changes in the glands, and how the latter process would thus indirectly bring about an oedematous infiltration of the mucous membrane, it is necessary to refer to a point in connection with the anatomical arrangement of the blood-vessels in the nasal mucosa, as described by Zuckerkandl (3). The arrangement in the turbinal and meatal regions is, so far as it concerns the present subject, as follows: The arterial supply of the mucous membrane ramifies in three networks. One network supplies the periosteal layer, a second is dis-

tributed to the glands, and a third to the superficial epithelial layer. The glands, which are surrounded by a special capsule, are closely enveloped by their network of capillaries. Around the excretory duct there is a tube-shaped network of capillaries and veins which is so closely applied to the duct that, in Zuckerkandl's opinion, it helps to keep that channel closed when the gland is not actively secreting. When a mucous gland undergoes marked distension or cystic dilatation, the excretory duct is apparently the first to suffer. Recklinghausen has considered that it is the only part of the structure that participates to any conspicuous extent in the process, and my own observations have given me a similar impression, although some distension of the acini may be observed. When, therefore, the duct undergoes distension and enlarges, for example, to five, ten, twenty, or many more times its normal size, the pressure which is exerted on the closely-applied tubular network of capillaries and veins which surrounds that structure must obviously be very considerable, and have a great tendency to hamper, or altogether obstruct, the flow of blood through these vessels. This obstruction would raise the intra-vascular pressure in the associated capillaries and tend to produce transudation of serum through their walls into the loose tissues around, the process being materially assisted by the increased permeability of the capillary walls, the result of inflammation or of a passive hyperæmia.

The probable Sequence of Events in the Formation of a Mucous Polypus.

(i) *Chronic inflammation* of the mucous membrane.

(ii) *Dilatation of the glands*—more particularly the gland-ducts—going on to cystic distension, caused either (a) through marked inflammatory infiltration of the excretory ducts and sealing of their orifices, produced by the presence of septic discharges, as in mucous polypi associated with accessory sinus suppuration or with a malignant growth, or (b) through excessive filling of the glands (the result of their periodic over-activity due to nervous or other causes) combined with a partial obstruction to the exit of the gland-contents, the result of congestion and swelling of the mucous membrane, such as occurs in chronic catarrhal rhinitis. (This latter train of events appears to occur in the formation of polypi associated with certain of the reflex nasal neuroses.)

(iii) *Ædematous infiltration* of the tissues, resulting from the passage of serum through the capillary walls, due (a) to increased pressure in certain of the capillaries owing to obstruction of the

capillaries and veins towards which they lead, (b) to increased permeability of the capillary walls, the result of inflammation, and (c) to the laxity of the surrounding tissues, which is relatively marked in the regions from which polypi usually take origin.

(iv) *The formation of folds* or projections on the infiltrated mucous membrane, produced either from folds which are normally present or, more commonly, by the widening of the sulci, formed by the dilated gland-ducts, which results in a projecting boss of oedematous tissue bounded by the broadened sulci.

(v) *The increase of oedema* in certain of the folds, formed in the manner described, combined later with a hyperplasia of the fibrous elements. This results in :

(vi) *The formation of flat, oedematous projections* containing the essential constituents of the mucous membrane (*broad-based* or *sessile polypi*), or the formation, through the influence of gravity or other physical causes, of oedematous projections, containing the same constituents but a greater amount of fluid and perhaps of hyperplastic tissue, and each possessing a base which gradually becomes relatively constricted or stretched until it constitutes a pedicle (*pedunculated* or *gelatinous polypus*). The pedicle connects the remainder of the structure, which has now become a globular swelling, with the mucous membrane from which it sprang.

(4) *The evidence in favour of the mechanical changes in the glands being the determining cause of polypus-formation* is based on pathological, experimental, and clinical observations.

Pathological evidence.—(1) The observation, almost invariably, in the numerous specimens examined, of a number of glands in a state of marked distension or cystic dilatation. By this is meant that the glandular changes were invariably found at various points in the mucous membrane when it was in an early stage of polypoid change; invariably in the tissues contiguous to pedunculated mucous polypi, wherever the tissues in question were oedematous, and usually, but not invariably, in isolated sections—that is to say, sections which were not cut serially—of the actual pedunculated growths themselves. (2) The observation of the particular glandular changes in instances of mucous polypi occurring under varying circumstances or conditions—the circumstances or conditions being in some cases common, in others exceptional. (3) The observation that these glandular changes were absent in those instances of inflammation of the nasal mucous membrane in which the characteristic oedema of a mucous polypus was also absent. (4) The fact that portions of inflamed mucous membrane removed

from the regions in which polypi develop, and similar portions in an early stage of polypoid change, removed from the same regions, appeared to resemble each other in all essential residual conditions except one—the condition of the glands.

From these observations it appears reasonable to conclude that these two pathological conditions—dilatation of the mucous glands and polypoid change—which are found to be present in such constant association, both when polypi develop under ordinary circumstances and when they arise under exceptional conditions, and which are also observed to be simultaneously absent—the non-occurrence of the one coinciding with the non-occurrence of the other—stand to one another in some way in the relation of cause and effect. In order to ascertain which of two phenomena is cause and which effect, recourse may obviously be had to the method of experiment, by setting in action the phenomenon which is assumed to be the cause, and by observing whether the remaining phenomenon is thereby produced.

Experimental evidence.—As cats are known to suffer from ordinary bilateral mucous polypi (4), that species of animal was selected for the experimental determination of this point. Without going into the details of the experiments, which I have already described in a monograph on the subject of "Nasal Polypus" (5), it may, in summing up the results, be said: (1) That the production of an inflammatory process in the nasal mucous membrane of these animals was not followed by any indication of polypoid change or of any changes in the glands of the character described. (2) That the production of an inflammatory process in similar animals, produced in the same manner and by the same agents, and lasting for a similar period of time, but combined with measures calculated to cause overloading and distension of the mucous glands, was followed by localised œdematosus infiltration and polypoid changes in the mucous membrane, the latter showing marked distension of the glands on histological examination. (In the instances in which hyperstimulation of the glands alone was practised, without setting up an inflammatory process, no obvious ultimate effects of any kind were noted.)

The setting up of an inflammatory process alone was, therefore, not followed by œdematosus infiltration of the mucous membrane, whereas the introduction of a fresh circumstance (glandular dilatation), which was thought to be the cause, was followed by another fresh circumstance (polypoid change), which was therefore assumed to be the effect.

With reference to the question of whether the glandular changes may not be secondary to the œdema of the mucous membrane rather than the indirect cause of it, as I myself believe, it may be said that, apart from the experimental evidence in favour of the latter supposition, it is not apparent in what manner an œdema would set up these glandular changes. It is, in fact, well known that an inflammatory process, of itself in some instances, and in others with the assistance of another known factor (viz. overloading of the glands due to hyperstimulation), is capable of producing these changes, quite independently of the presence or absence of œdema. Moreover, in some instances in which marked œdema has occurred (*e.g.* in the mucous membrane covering the anterior portion of the middle turbinate) apart from polypus-formation, and due to other manifest causes, these glandular changes have been absent, whereas if the œdema were the cause of the glandular changes the latter should, under these circumstances, have occurred.

Verification of the evidence by clinical and other facts.—It may be inquired whether the theory which I have advanced as to the pathogenesis of mucous polypus is capable of explaining undoubted clinical and other facts which have been observed. It is known, for instance, that polypi may occur under circumstances which appear to be extremely varied; yet although the conditions are frequently unlike, the structures themselves are essentially identical, and the question arises whether my hypothesis could explain and reconcile the pathogenesis of similar structures occurring under dissimilar circumstances. The following examples may be selected: Unilateral polypi occurring with a unilateral suppuration of an accessory sinus and apparently due to the irritation of the purulent discharge; bilateral polypi not associated with accessory sinus suppuration or with evident focal suppuration of any kind; polypi occurring in the course of the reflex nasal neuroses; and polypi which appear to be hereditary or which occur in several members of the same family.

In the case of unilateral polypi associated with a unilateral septic discharge, it is hardly disputed that an inflammation of the mucous membrane is set up by the purulent secretion, and that the glands may undergo cystic dilatation through obstruction of their ducts by inflammatory infiltration, or, perhaps, in long-standing cases, by the contraction of newly-formed fibrous tissue. I suggest that as the glands dilate the intra-capillary pressure becomes augmented (as described above), transudation begins to take place, and œdema supervenes.

On the other hand, bilateral polypi, occurring without any manifest local cause, must apparently be due either to a particular irritant or agent to which only some individuals are exposed, or to a common irritant or agent which, owing to inherent or constitutional peculiarities in the individual, can produce the particular effects which constitute the disease only in certain persons. With reference to this latter and more probable alternative, the question arises whether there is any known constitutional peculiarity, which is present in some individuals and not in others, and owing to which the particular glandular changes which have been described could occur in both nasal cavities under certain known circumstances. A "known constitutional peculiarity" of this description is an instability of the vaso-secretory mechanism of the nose, which leads, among other effects, to periodic hypersecretion and overloading of the glands; which frequently declares itself plainly as one or other of the reflex nasal neuroses, but which may exist in certain individuals—and according to Chiari (6) does exist, although usually to only a slight extent, in the majority of people belonging to the civilised races—without causing symptoms sufficiently exigent to attract special attention, until perhaps an intra-nasal irritant has manifestly upset the balance, or until actual polypi, which are usually assumed, without proof, to be the cause and not the effect, have developed.¹ Yet by no means every case which gives even obvious signs of this constitutional tendency to reflex hypersecretion on the part of the mucous glands, suffers from nasal polypus, although a considerable number of such cases do so. A superadded factor must therefore be present in certain cases of this description in order to produce the mechanical changes in the glands, which would lead to the obstruction of the periglandular vessels, and so to the initial oedema. A "common irritant or agent," which, combined with the above-mentioned "constitutional peculiarity," may (as indicated earlier in this paper) be regarded as capable of producing these specific glandular changes, could be supplied in the shape of an ordinary chronic inflammatory process, affecting, as is usual, both nasal cavities—a condition which is

¹ Judging from the histories of a considerable number of instances of bilateral polypi which I have collected, the evidence is decidedly in favour of the polypi being the result and not the cause of the periodical glandular hypersecretion or nasal neurosis. In nearly every instance there was a definite history of periodical, clear, nasal discharge, which preceded the onset of nasal obstruction by one to seven years, and in most cases had become less marked or had disappeared by the time the obstruction had become sufficiently pronounced to induce the patient to apply for relief.

apparently insufficient, of itself, to cause polypus-formation. It has, indeed, been shown, at any rate experimentally on the lower animals, that marked dilatation of the glands and a consecutive oedema can actually be produced by the conjunction of these two factors, viz. periodic overloading of the glands and a chronic inflammatory process (7).

The well-known, but hitherto unexplained, relationship that exists between certain of the nasal neuroses, which are characterised by periodic reflex hypersecretion, and polypus-formation, is thus rendered intelligible, and I believe, moreover, that this affinity also renders intelligible the occurrence of a hereditary, family, or constitutional tendency to polypus-formation (of which many observers (8) (9) (10) consider there is abundant evidence), since one of the factors in the production of ordinary bilateral mucous polypi may be of a hereditary or constitutional nature. The correspondence of the usual age-incidence of the two conditions (fifteen to fifty) may also be capable of explanation on similar grounds.

The remarkable frequency with which nasal polypi have been found in bodies examined *post-mortem*,¹ by several well-known observers who have investigated this point, and the relative infrequency with which these growths are detected on clinical examination in the living, seem to be explicable on the supposition that polypoid changes (when bilateral, and not due to accessory sinus disease), although usually of minor degree, are extremely common, as would be expected if the disease were referable, as I contend, to the conjunction of two very common conditions, viz. a condition of reflex hypersecretion on the part of the mucous glands and a chronic catarrhal inflammation; but that the subsequent evolution of the condition, in a large number of cases, is so slight as not to cause any marked symptoms, or the latter are referred by the patient to a chronic nasal catarrh.²

With reference to the question of *recurrence* after removal (by

¹ Zuckerkandl found nasal polypi in one out of every eight or nine bodies examined; Heyman found the condition in one of every twenty-eight bodies. Recently, Oppikofer has made a number of investigations and found polypi in one out of every sixteen bodies.

² The writer wishes to make it clear that he considers unilateral polypi, associated with nasal suppuration, and obviously due to the discharge, and bilateral polypi not so associated, to be both referable to the same proximate causes, viz. mechanical changes in the glands leading to a local obstruction in the efferent circulation, but that the factors which set in action these proximate causes are different in the two groups (*vide* "The probable Sequence of Events in the Formation of a Mucous Polypus").

which I mean a veritable reproduction, and not a further development merely, of polypoid outgrowths which have escaped removal), I may say that the known differences in the behaviour of polypi in this respect appear, generally speaking, to be explicable by the suggestion which I have advanced—that the growths are due, in some instances, to an obvious local cause (*e.g.* accessory sinus suppuration), the effective removal of which would be likely to result in the cessation of the effects and therefore in non-recurrence; but that they are chiefly referable, in other instances, to a general, constitutional cause which is not removed and continues to produce its effects, and would therefore be likely to be followed by recurrence.

The customary location of polypi in certain special intra-nasal regions and in certain of the accessory sinuses is to be explained chiefly by the known structural peculiarities of these regions. Concerning the question of whether the usual non-occurrence of mucous polypi in other nasal areas might be due to the usual absence of cystic dilatation of the gland-ducts in those areas, or whether, the condition being present, it is unable to bring about the primary oedema, owing to the firmness and relative thickness of the tissues, I may say that my own observations have led me to believe that these changes do not occur in the aforesaid areas, apart from those exceptional instances in which new formations, possessing the structure of genuine mucous polypi, develop there. In such cases the glandular changes have been found to be present in the instances which the writer has had an opportunity of examining.

In conclusion, I wish to point out that my theory is not advanced as an explanation of all instances of oedema which may occur in the nasal cavity, whether in the "polypus areas" or elsewhere, nor of all pedunculated intra-nasal swellings, many of which, although not mucous polypi, undergo, secondarily, a serous infiltration from pressure on their pedicles and from other causes. My contention is simply that the glandular changes, which have been described, are capable of explaining the initial oedema of the mucous membrane which represents the essential primary stage of one particular pathological process, *viz.* mucous polypus-formation.

REFERENCES.

- (1) GRÜNWALD.—"Nasal Suppuration." Translated by Lamb from second German edition, London, 1900.
- (2) LACK, L.—"Diseases of the Nose and its Accessory Sinuses," chap. xi, p. 173, London, 1906.

- (3) ZUCKERKANDL.—“Anatomie Normale et Pathologique des Fosses Nasales,” Traduit par Lichtwitz et Garnault, Paris, 1895.
- (4) HOBDAY.—“Surgical Diseases of the Dog and Cat,” London, 1906.
- (5) YONGE.—“Polypus of the Nose,” Manchester and London, 1906, p. 67.
- (6) CHIARI.—“Maladies du Nez,” Traduit par Breyre, Liége et Paris, 1905, p. 58.
- (7) YONGE.—*Loc. cit.*, pp. 64, 70.
- (8) HEYMAN.—“Die gutartigen Geschwülste der Nase,” *Handbuch der Laryng. und Rhinol.*, Bd. iii, H. 2, Wien, 1900, p. 819.
- (9) JACQUES.—“Nature, Causes, et Traitement des Polypes du Nez,” *Rev. heb. de Laryngol.*, October 31, 1903.
- (10) BALL.—“Diseases of the Nose and Pharynx,” fifth edition, London, 1906.

Dr. WATSON WILLIAMS expressed his opinion that the nasal polypus was produced by obstruction of the lymphatics—that the occurrence of the localised œdema was due to an infective lymphangitis, in consequence of which the vascular supply was kept up as before, but the lymphatics were obstructed, and various hypertrophic changes were thus brought about. Mere vascular conditions were not the cause of the polyp. Small polypoid forms, œdematos polypi, were present long before the question of gravity came into play, which causes the growth to fall down as it grows larger. At first the polyp projects horizontally. Many infective conditions were not associated with suppuration. The mucous polyp, in his opinion, was due to an infective process which involved the lymphatic vessels, and not the arteries or veins directly. The vascular supply continued much as before.

Dr. SCANES SPICER put down the origin to degeneration of the mucous glands, and believed that the condition was a passive and not an active œdema. Reflex neuroses were very frequently due to pathological changes. Sneezing and lacrymation were merely of a temporary nature.

Dr. STUART-Low was of opinion that the polypus depended upon the relative thickness of the mucous membrane. This was apparent from certain facts that Dr. Yonge had mentioned, one of which was heredity. Persons inherited thick skins and thin skins, thick mucous membranes and thin mucous membranes. Irritation and inflammation in susceptible persons with a thin mucosa, that is, with a silky lining, instead of a velvety one, tended to set up polypi, or the condition might be acquired on account of vicious surroundings. Inflammation was doubtless brought about by irritation of the mucous membrane. Some animals, the cat for instance, got polypi, because it has a thin nasal mucous membrane: the dog did not, its mucous membrane being thicker and velvety. Two-thirds of the nasal cavity of the cat was given up to smell, and Dr. Stuart-Low said he was pleased to see the beautiful diagram which Dr. Yonge had passed round to illustrate a polypus produced in the cat. It lent a great support to his theory, that wherever there was a naturally thin mucous membrane the animal would be subject to polypi.

Dr. ADOLPH BRONNER thought that polypus began with inflammation of the lymphatics or blood-vessels, and to a large extent depended upon the formation of the nose and the largeness of the turbinates. This he thought was proved by the absence of polypi in the negro races.

Dr. LAUZUN-BROWN thought that Dr. Bronner was misinformed with regard to the absence of polypi among negroes; he had worked a good deal among the African negroes, and he had seen them affected with polypi just as frequently as Europeans.

Dr. BALL said he had been accustomed to regard polypi as arising

from inflammatory conditions—acute rhinitis, and thus having a catarrhal origin. Another cause was paroxysmal sneezing, or coryza, which was not inflammatory, and a third cause was excessive suppuration in the accessory sinuses. Generally speaking, polypi could be grouped as arising from one or other of these causes, an arrangement which would fit in fairly well with Dr. Yonge's views. Certainly the paroxysmal sneezers who suffer from rhinitis do, in the course of time, develop polypi.

Dr. MILLIGAN said that Dr. Yonge had done great service in treating of the subject of the actual formation of the mucous polypus. The present classification did not go to the root of the question, or explain its underlying pathological conditions. The monograph, however, is not convincing. He associated himself with the remarks of Dr. Watson Williams and the lymphatic theory of origin. Further investigations should be made regarding the normal lymphatic supply of the nose, especially of the return currents. If someone could take up this subject and work out the lymphatic condition in cases where there had been polypi, a great service would be rendered. If mere irritation were the cause of polypi, how came it about that the condition was hardly ever found in snuff-takers? Of all irritants, snuff was the greatest, and one would expect that under these circumstances changes would have been found in the mucosæ of these persons, but he believed they did not exist.

Dr. WHITEHEAD thought they were still groping in the dark with reference to the pathology of nasal polypi. He could not accept Dr. Yonge's theory to the extent the author did. He thought Mr. Stuart-Low had indicated a very important factor, a peculiar susceptibility of the mucous membrane which some people possess, and which sometimes seems to run in families. One is accustomed, as Dr. Ball says, to divide cases into certain classes. Putting aside those cases of accessory sinus suppuration, he had always found present a susceptible mucous membrane. He had a lady patient who in the summer time had a perfectly healthy mucous membrane, but in the winter this got into a condition of solid oedema, and the patient had to pass the winter in the South of France or in some other warm climate. The infective theory was a very important one, but he could not quite see how the infective process could account for the production of numberless small polypi in some cases, and a single large one in others.

THE PRESIDENT OF THE SECTION (Dr. MCKENZIE JOHNSON) thought they had had an interesting and important discussion. Personally, he rather favoured what Dr. Watson Williams had said with regard, at any rate, to a very large number of the cases, though he did not consider that his view would be a universal cause, though it has clearly something to do with a very large number of nasal polypi. Others seemed to date their origin to some severe infective inflammatory condition of the nose. With regard to Dr. Yonge's paper, the author seemed rather to base his theory on some experimental work, and he had sent drawings round to support this. The President did not know that he could follow all the details of this experimental work. He would like to know whether, and by what means, the nasal cavities of the cat had been examined prior to the experiment.

Dr. YONGE said he had always examined the nose of the animal and observed its patency, and when possible he had tried to examine the cavities.

THE PRESIDENT: "Well, I should prefer that someone other than myself should do that." One could hardly expect definite conclusions

from conditions to be found in the cat on the post-mortem table to be of much value, unless there had been an opportunity of satisfying one's self beforehand as to what the conditions were prior to the experiment. He only mentioned that as one of the things that had struck him, as rather invalidating the importance of the facts derived from this experimental work, and the implied evidence following therefrom. He quite saw the difficulty of carrying it out. Otherwise, he had an appreciation for Dr. Yonge's work, and thanked him cordially for bringing it before the section. He asked what method he had adopted for applying the irritation.

Dr. YONGE said he had two methods. In some he injected through a special little tube placed in the nose a little of the diluted oil of mustard, until it caused a certain amount of sneezing. Another method was to put the animal in a chamber with a very small quantity of pepper on the floor, sufficient to set up sneezing within about ten minutes. None of the experiments had lasted beyond a period of twelve weeks.

THE PRESIDENT: Perhaps you will be able to instruct Dr. Milligan how it is that persons who take snuff are not similarly affected.

Dr. YONGE, in his reply, stated that with regard to Dr. Watson Williams and his theory of reflex neuroses, he thought that they were not a cause of the polypi which were rather the effect of local changes. He could not think for an instant that polypus was due to a reflex nasal neuroses; but he thought that a great number of cases suffered from a reflex condition of hyper-secretion set up, partly by the susceptibility of these neuroses, and partly by an irritant or a deflected septum or some other local condition. One of the signs of these neuroses was a tendency to increased glandular activity, one of the factors in the production of the mucous polypus. Hyper-secretory conditions might be present without any cause except a slight abnormality, which could not be considered pathological, or be regarded as the cause of the neurosis. Dr. Watson Williams asked how the condition could be due to obstruction of the circulation when there was evidence of vascularisation in the polypus. Obstruction in the vessels started a primary oedema, and physical causes made it become a polypoid swelling afterwards. The polypus had the same structure as the original mucous membrane which was inflamed and very vascular. The theory of lymphatic obstruction was interesting, and had a certain amount of verisimilitude, but it was merely conjecture—merely a possibility which, until some proof was brought forward, one need hardly criticise. On the other hand, Professor Coates pointed out that obstruction of the lymphatics was a most uncommon cause of passive oedema, except in the comparatively rare condition of elephantiasis, whereas the kind of obstruction which he advanced was exceedingly common and well known. Another objection to Dr. Williams' theory was that certain people showed a constitutional predisposition to this "lymphatic obstruction." It seemed also that some cases of polypus arose without the slightest evidence of a septic condition whatsoever, and therefore this cause would hardly act in the lymphatic obstruction theory, and in this respect the theory was defective. With regard to Dr. Stuart-Low's question, there was not the slightest doubt that structural peculiarity was a factor in the cause of polypus, but if the history of a polypus case was noted it was seen that these cases occurred at different periods of life. Why should one person develop polypi at the age of twenty, another at the age of seventy? Structural peculiarities, therefore, would not explain the whole thing. There was no doubt about its being a factor, but it did not explain all. As regards Dr. Bromner's question as to the formation of polypus not always

being preceded by a hypersecretion, it raised a very interesting point. In something like ninety per cent. of cases there was a history sometimes for months, sometimes for two or three years, of increased running at the nose which preceded the obstruction, which occurred when the polypi became fairly large. He had examined about thirty cases, and would continue to examine others to ascertain how many cases gave a history of hypersecretion before the formation of polypus. Irritation might explain the occurrence of polypus in the sinuses, but it would not explain the whole gamut of polypus in the nose, and neither would inflammation if taken alone. In conclusion, he added his theory was not based on experimental evidence alone, but on the verification of experimentally acquired evidence by clinical facts.

A STUDY OF THIRTY-SIX SUCCESSIVE CASES OF OPTIC NEURITIS. NASAL ACCESSORY SINUS DISEASE PRESENT TWENTY-SIX TIMES.

TREATMENT OF THE SINUSES FOLLOWED BY IMPROVEMENT OF THE OCULAR CONDITION IN FIFTEEN CASES, INCLUDING THEREIN THREE BILATERAL CASES RESTORED TO NORMAL.

BY HENRY MANNING FISH, M.D.,
Chicago.

(Continued from page 448.)

CASE 6.—*Bilateral Chorio-retinitis and Partial Optic Atrophy, due to Polysinusitis following Influenza.*

In December last Mr. R—, of Aurora, aged fifty-six, consulted the writer. The vision in each eye was so reduced it was with difficulty he could decipher large print by means of a good-sized magnifying glass that he always carried with him. He was a travelling agent and signed his name mechanically in the space allotted therefore on his order blanks. Ophthalmoscopic examination revealed an old, disseminated choroiditis with large atrophic areas, brownish spots from old haemorrhages, and scattered heapings of pigment. Each optic nerve was atrophic. He related that he had long suffered from catarrh, and during and after an attack of influenza, several years before, the yellow nasal discharge had been continuous and abundant, and that his vision had become reduced. The left eye was first affected—he had been told there were intra-ocular haemorrhages—and later the right eye had suffered in the same way. This patient himself spoke of his long-standing catarrh:—"One would think from the amount of corruption I have blown from my head that it would be empty." Nasal examination showed

abundant purulent secretion, enlarged, soggy middle turbinates, polypi, and granulation or polypoid tissue in each nostril.

Operative interference was advised, and the patient said he would return to be operated upon, but he was not seen again, which accounts for the meagre history obtained.

CASE 7.—Bilateral Optic Neuritis and Muscular Involvement due to Sinus Disease. Left Eye, Amaurosis; Right Eye, Restoration of nearly Normal Vision after Treatment of the Sinuses. (Case published in *Archiv f. Augenheilk.*, 1904, vol. lii, p. 275.)

Mr. B—, New Orleans, La., aged fifty, always had good vision until the middle of April, 1904, when, in the course of a few days, it became very dim in each eye, both for distance and near. He could not read large print with his hitherto serviceable glasses. In addition, he suffered with slight pain about the eyes, disturbed sleep, and occasional attacks of vertigo, one severe enough to cause him to ask a friend to lead him to a street car. He visited an eye, ear, nose, and throat hospital six or eight times, but nothing further was done than to change his distance glasses (!) which he had worn for several years, and he was told to return in a few days. A day or two later, when he awoke in the morning, the periocular pain was worse, the lids red and a trifle swollen, and he was unable to open them. He then visited the eye clinic of another hospital, being led there by an attendant owing to complete bilateral ptosis. On account of this apparent paralysis he was referred to a specialist in nervous diseases, who—(patient said he tapped his knees, made him protrude his tongue, make faces, etc.)—told him the trouble was due to some nervous disease. He was under the care of both physicians, and was given the classical treatment for nearly two months—increasing doses of K. I., hot baths and mercurial inunctions, pushed to salivation. The heart and urine were not examined. He suffered more or less with pains in and about the left eye and in the left side of the face. In the course of a few weeks the ptosis disappeared, the pain was less severe, but the vision did not improve. Later on the stormy symptoms returned on the left side with increased severity; ptosis, exophthalmos, œdema of the lids, bulbar injection, great loss of vision and severe unilateral trigeminal pain in the eye, frontal, maxillary, temporal, occipital region, in the teeth and root of the nose. This intense pain, he was told, was due to the inflammation in the eye. At this time an abscess appeared in the cornea. Patient said he frequently called attention to the pain at the root

of the nose, left side, and a specialist examined his nose and said there was nothing the matter with it. The neuralgia had disappeared when the patient came to the writer.

Present state (August 15).—Strong, healthy man, weighing 200 lb., of good habits, non-user of tobacco and alcohol, free from syphilis, gonorrhœa, tuberculosis and all constitutional trouble—a varicose ulcer on the right leg was the only lesion detected. Patient insisted that he had always enjoyed the best of health and scouted the idea of his having any "nervous disease." Right eye: external appearance normal; cornea and lens clear; pupil active, dilates *ad maximum* under atropine and is round, though there are one or two radiary pigment spicules and minute dots on the anterior capsule. In the vitreous several large, fixed opacities and abundant fine, cobwebby striations which obscure the fundus details. Tension normal. Vision $\frac{5}{200}$, with + 5 D. S. (his old glasses) $\frac{18}{200}$ slowly. Left eye: entire orbital region greatly inflamed; exophthalmos; partial ptosis; œdema of both lids; episcleral congestion; cornea anaesthetic and greatly infiltrated with a deep ulcer in the pupillary region. Hypopyon. Iris was bound down, save a small segment in the upper part. No view of the fundus or red reflex obtainable.

Nasal examination.—Free passage of air in each nostril, although each inferior concha was so swollen as to hide the middle; the latter were also engorged. Granulation or polypoid tissue in each middle meatus and necrotic bone felt with the probe. No pathologic secretions. Treatment of the frontal sinuses—probing and syringing—followed by a muco-purulent discharge, relief from the dull constant pain, and the sleep became natural. The left orbital congestion rapidly subsided, the œdema of the lids, exophthalmos, and hypopyon disappearing. At the end of a week a glistening facet had replaced the corneal abscess, which had been deep enough to cause an adhesion of the iris to the cornea. The vitreous opacities in the right eye less abundant; vision equalled $\frac{1}{4}$. No turgescence in either nostril. No swelling of the lower concha, the middle visible and not congested; the middle meati open. The patient resumed his occupation. In this condition the case was reported verbally at the Tenth International Congress, Lucerne, September, 1904. In November the vision was $\frac{2}{3}-\frac{3}{4}$, with ability to "read as good as ever." The disc showed discoloration. Left eye: amaurosis, disc atrophic, paralysis left rectus externus. Condition one year later unchanged. The neurologist who examined this patient told the writer that the ophthalmoplegia, the beginning left optic neuritis,

and the left trigeminal neuralgia were due to an intra-cranial lesion—"specific, as shown by the results of the treatment."

CASE 8.—Bilateral Optic Neuritis; Partial Atrophy of Each Optic Nerve, due to Chronic Sinus Empyema following a Cold.

Mr. C—, a strong, healthy man, aged sixty-eight, seen April 20, 1905. Outward appearance of each eye normal; media transparent; each disc atrophic and excavated; vision, left eye counting fingers, right eye $\frac{1}{2}0$. Patient relates that years ago, while camping out, he slept with his head near the edge of a tent and caught a severe "head cold." He had long suffered with neuralgic pains about the forehead, top of the head, and often in the orbit and eyeball itself. This pain had been more marked and more frequent in the left side, though the right has also frequently been affected. He has consulted several oculists, some six altogether, as well as different practitioners on account of the frequent attacks of neuralgia. In September, 1900, there was an unusually severe attack of left neuralgia, following a cold; the pains were intense in the left orbital region, and especially in the eyeball. This was accompanied by a marked and rapid reduction of vision in the left eye and "a commotion in the head." The vision of the right eye was not involved until recently, as evidenced by the following notes which were shown me by the patient:

Eye, Ear, and Throat Hospital, Mr. F. A. C—, left eye, haemorrhage at macula, October, 1900 (our own case). V. = $\frac{1}{2}00$.

To-day (March 4, 1905), R. + 2 S. V. = $\frac{2}{2}00$. L. + 2 S. V. = $\frac{2}{2}00$. Scope shows a total atrophy of optic nu., L. E., evidently result of old haemorrhage.

But! R. E. disc shows well-advanced atrophy, with great excavation. Field of vision is very much contracted. From vision central fibres are evidently well preserved.

Signed.

B. and R.

The patient suffers from almost daily attacks of neuralgia, paroxysmal in character, with intervals of comparative freedom therefrom. There are also daily attacks of vertigo, some of them severe enough to cause him to catch hold of something to prevent his falling; in others he is forced to sit down until the dizziness passes away. The symptoms in the right eye are changeable—at times he has comparative comfort on close application, at others he can not read for five minutes. The patient suffers from a long-standing catarrh, "the nose always feels stopped up," and frequent attacks of sneezing, in which he sneezes ten or fifteen times in

succession. His sleep is restless and often disturbed by horrible dreams. Five or six months ago, during an especially severe attack on the right side, the vision of the right eye was reduced, but improved after the neuralgia wore away. Neuralgia always worse during the winter months.

This clinical history is well nigh conclusive of a chronic sinusitis, with frequent exacerbations, originally induced by a cold in the head from exposure. Nasal examination showed a pathological secretion in each middle meatus and on the inner side of the middle turbinate bone (the surface toward the external nasal wall), granulation or polypoid tissue. Treatment of the fronto-nasal canal on each side was followed by an increased muco-purulent secretion in each middle meatus, and the patient volunteered the information that there was marked relief from the neuralgia, dizziness, etc., and that his sleep had become normal. On the fifth day he reported that the night before he had suffered his first attack of neuralgia since the treatment began—the pain had been severe, “bad enough to drive me to suicide.” Operative interference, to relieve his sufferings and to arrest the failure of vision in his one good eye, was advised, but it was not consented to and the patient passed from observation.

CASE 9.—Bilateral Optic Neuritis terminating in Amaurosis; Temporary Paresis Left Sixth Nerve; Complete Paralysis of Right Third Nerve, due to Bilateral Polysinusitis. Partial Relief of the Muscular Trouble following Treatment of the Sinuses.

T. M—, aged thirty-eight, U.S. Marine Service, while in the Philippine Islands a year or so ago discovered accidentally on covering his right eye that the vision in the left was reduced. A physician told him he had optic neuritis and gave him the usual treatment, and as the condition did not improve, he consulted various other physicians—seven all told. Later the right eye was similarly affected, and in addition the left external rectus was temporarily involved, “the left eye turned in, but later became straight again.” He suffered with a continual dull heavy pain in the bone over the eyes, and occasionally in the vertex on the left side. Dizziness was present from time to time. Complete blindness coming on, he went to San Francisco, where he consulted three ophthalmologists, and later he came to Chicago, where he was examined by over a score of specialists—both as a private patient and in the different clinics. He also consulted two ophthalmologists in Milwaukee. Paralysis of the right third nerve

was a late complication. This case has been variously diagnosed—probable brain tumour, alcoholic amblyopia, syphilis—and the patient has been the subject of a half dozen clinical lectures in colleges and post-graduate schools by the neurologist and ophthalmologist. The nostrils had never been examined.

Present state, February, 1907.—Strong, rather fleshy man, healthy in every respect aside from the ocular trouble. He had been a drinker and a smoker. No family blindness. Years ago gonorrhœa, and two or three sores on the glans penis appearing at the same time, that were "burned." The appearance of secondary specific symptoms, or any trouble with the gait, body pains, etc., was denied. A well-known neurologist who examined him at my request reports no symptoms of syphilis to be found. Ocular examination shows total optic atrophy, no light perception in either eye; otherwise normal, save paralysis of the right third nerve, the total ptosis being well marked. The patient complains of no severe head pains, but says there is continually present a dull, heavy pain in the bone over each eye, indicating with his finger the frontal sinus, which pain, he says, has time and again been mentioned to the examining physician's. Slight tapping over the region of the frontal sinuses shows sensitiveness; attacks of dizziness from time to time. Catarrh denied. Nostrils free, although each lower and middle turbinate is greatly swollen, adrenalin shrinking it. No secretion. Necrotic bone detected high up under each middle turbinate. While examining the left posterior nares with a probe the patient said he felt the old pain in the left vertex. Following day, mucopurulent secretion from middle meatus—staphylococci (Columbus Medical Laboratory). Skia-graph showed enormous frontal sinuses and evidences of a polysinusitis. Total loss of sense of smell—neither whisky nor tobacco recognised. The patient was told that a bilateral sinus disease was responsible for all his symptoms, including the closure of the right eye, which he had attributed to peri-orbital injections, and further, that treatment of the sinuses was too late to help the vision, but that it would probably open the eye. Treatment of the right frontal and ethmoidal sinuses resulted in an ability to rotate the globe slightly towards the median line; the ptosis was not affected. The patient then went to a mud-bath cure for several weeks, and on his return the condition was unchanged. The necrotic ethmoidal cells were curetted April 17, total ptosis then being present. During the following days crusts of thickened yellowish secretion, the size of a small hazel-nut, were removed from the parts curetted.

The second day the palpebral fissure was in evidence, and the third day one could see the lower part of the iris, and the patient reported that his friends had told him that the eye had been "nearly way open." The second week the entire pupil could be seen between the lids. The condition of the other muscles gradually improved; the second week the globe could be rotated to the median line, and soon afterwards past it. The second month the lid could be nearly completely raised (the left eye being somewhat divergent), and the eyes at times are nearly parallel in spite of the absence of any stimulation of the fusion centres. The long-standing dull pain in the right internal orbital angle disappeared; the patient has frequently referred to the difference between the two sides in this respect. Tapping over the right frontal sinus fails to elicit the former sensitiveness. The right lower turbinate is normal in size and appearance; there has been no turgescence now for some weeks. This normal condition of the lower right turbinate stands out in marked contrast with the still congested "hypertrophied" lower and middle turbinates in the left nostril—the condition that was present in the right nostril before draining the sinuses.

The total anosmia persists. An ocular symptom the patient has often spoken of was the frequent appearance before either amaurotic eye, whether open or closed, of a bright light, "like after you look at the sun." Patient says this brightness did not appear before the right eye since the operation.

A radical operation of the frontal, and possibly other cells, would doubtless relieve completely the trouble with the excursions, but this procedure was not advised.

(To be continued.)

POST-GRADUATE COURSES FOR DISEASES OF THE NOSE, THROAT AND EAR, GLASGOW ROYAL INFIRMARY.

THE Directors of this institution have for the last two years introduced a definite post-graduate course in a great many subjects of the medical curriculum. The hospital accommodation is large, and every facility can be obtained for giving thoroughly practical courses. So far, they have been very much appreciated by medical men in Scotland.

The courses are given twice a year, in spring and autumn, and full particulars may be had on application to the Superintendent, Dr. J. Maxtone Thom, from whom a syllabus may be obtained.

The opening of the present course of lectures was on September 3, when Sir Almroth E. Wright delivered an address which was very largely attended by the medical profession.

The lectures and demonstrations on diseases of the throat and nose are given on Tuesdays and Thursdays at 10 a.m., and diseases of the ear at 12 noon on Mondays. The fee for attendance at any course is one guinea, and for any three courses of post-graduate lectures two guineas.

SOCIETIES' PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.

Meeting at Exeter, 1907.

SECTION OF LARYNGOLOGY.

President: DR. MCKENZIE JOHNSTON.

DISCUSSION ON THE TREATMENT OF CHRONIC SUPPURATION OF THE MIDDLE EAR.

This discussion was opened by the papers by Dr. WILLIAM MILLIGAN and Dr. WILLIAM HILL published in another portion of the present issue (pp. 485 and 502).

DISCUSSION OF THE ADDRESSES.

THE PRESIDENT OF THE SECTION (Dr. McKenzie Johnston) said the object which the Committee had in view in proposing this subject for discussion was to find, if possible, some method of crystallising the lines upon which chronic suppuration of the middle ear could be successfully treated. It was felt that we should judge the successful otologist as one who cured his patients by the fewness, not by the great number of mastoid operations which he found it necessary to perform. To do this it was not necessary to occupy the whole field. That would be too large an order for a meeting of this kind. The wording of the title had perhaps encouraged the possibility of the discussion being treated too widely. He was anxious to find some half-way measures which might make less necessary those extensive mastoid operations. Therefore, it was not so much a matter of great importance to discuss one operation and its sources of origin as to try and find some means of avoiding the necessity of more radical operations. He appealed to the section to crystallise the subject, if possible, and to avoid any detailed personal allusions.

Dr. CRESSWELL BABER said he had been extremely interested with both papers, particularly so with Dr. Milligan's. He was afraid from the experience he had that it would be difficult to advocate any half measures in such cases. As regards pre-operative treatment there

seemed nothing better than the moist treatment, the use of antiseptics and the subsequent instillation of alcohol. As regards the dry treatment, powders should be carefully applied, as they tended to conceal the progress of the disease. Ossiculectomy and curetting had been very disappointing in his hands, and led to disappointing results and to the necessity for further treatment, which patients do not like. Küster's radical operation seemed a much safer and sounder method. By exposing the parts clearly there was less risk of harming the semi-circular canals, and very often good results were obtained. The hearing was as good when the ossicles were taken away and there was less risk of subsequent suppuration. Bacteriological examination was interesting, but in concluding what operation was required it should be remembered that suppuration came from the antrum and could not be got at without opening it. Artificial drums were of great benefit to the hearing, but they could not be used if there was any suppuration or the slightest discharge from the deeper parts.

Dr. REEVE, of Toronto, said that one very valuable reason why he desired to keep his seat was that he had never invented any operation, but had simply been able to utilise what had been done by others while trying to exercise a certain amount of judgment of his own. Looking back over a number of years, he had done a number of operations through the mastoid cortex, opening the deeper parts where the suppuration was going on, but he had yet to record his first ossiculectomy. He had experience of interest in a case of chronic suppuration of the middle ear which he thought was doing fairly well and had healed up. He found afterwards that an aural surgeon had removed the ossicles and had never thought it necessary to examine the naso-pharynx. Now this patient had a chronic naso-pharyngitis with extension up the Eustachian tubes, and yet the surgeon had never thought it worth while to inspect these important parts before proceeding to remove the ossicles. That, he considered, reflected very seriously upon his ability as a surgeon in the sense in which he would like to regard it. We must hope that aural surgeons would take the same advanced position as a general surgeon is expected to do. He had on more than one occasion without very prolonged treatment been able to secure the absolute healing of the suppurative processes in the middle ear in which ossiculectomy had been strongly advised. Judging from his own experience and from what he had heard to-day he should persevere for a good while with medication of the middle ear before resorting to ossiculectomy.

Mr. STUART-Low said he had been working much on the same lines as Dr. Milligan, and also had the valuable assistance of Dr. Wyatt Wingrave. Being connected with a large hospital he had noticed one or two practical points. A great many females were more difficult to cure than males, and probably that might be due to the hygiene of the hair. He had usually asked them to have the head washed once a week with lysol soap and a solution of 30 per cent. of spirit and 20 per cent. of liquor hydrarg. perchlor. He often found patients scratching the head and immediately afterwards scratching the ear. This medicament improved them. He had for a long time back been asking Dr. Wingrave to examine the discharges from the middle ear before treatment commenced. He had recently obtained a valuable hint from the Hospital for Diseases of the Hip. There they use a lotion consisting of citrate of soda one part, sugar ten parts, and water to 100. That had the effect of increasing diapedesis and was comforting and soothing.

Dr. SYME thought Dr. Milligan had struck the right note in this

matter, and that the question of operative treatment of middle-ear suppuration was one rather of important detailed diagnosis. Milligan's method was helpful in coming to a conclusion as to the involvement of the lining membrane or the bone. Having discovered that, the line of treatment could easily be defined. The ordinary antiseptic treatment, which may be either the wet or the dry treatment, was a matter dependent upon personal choice. Frequently better results were obtained by a change of antiseptic treatment. He was interested in Dr. Milligan's advice regarding the pathological treatment of the naso-pharynx. That was a very essential part, and he had laid stress upon it in a paper which appeared in the *British Medical Journal* about a year ago. In that he insisted upon examination and, if necessary, treatment of the naso-pharynx and the nose. With regard to the question of the radical operation details of diagnosis were very essential, and, even if experience prove that the cytological examination was of some value, attention to the ordinary aural tests should not be lost sight of; tests, for example, such as increased loss of hearing, tinnitus, and vertigo. These should be in themselves an indication for a complete radical operation.

Dr. GEORGE JACKSON, of Plymouth, regretted not being present to hear Dr. Milligan's paper. He had found curetting of the tympanic cavity of service, and boracic acid and spirit was very useful in chronic suppuration of the middle ear. He had found peroxide of hydrogen better almost than anything else. Syringing was frequently not carried out properly. Dry powders caked inside the meatus, and he had practically given them up. He emphasised the necessity of attending to the naso-pharynx. He had referred to that as so often being the source of the mischief in many cases that he agreed with one speaker who had said that in every case it was absolutely necessary "to interrogate the nose." It seems to be a vulnerable part and infection often proceeds from it.

Dr. SMURTHWAITE said the discussion, as he took it, was on the question whether he should adopt conservative treatment or do a radical operation. That was dependent upon the extent of the diseased condition of the patient and his surroundings. If the patient was a private one, and the surroundings good, and if there was no dead bone in the middle ear—and the majority of the cases were of the nature where there was no dead bone present—most of these cases would clear up under fairly systematic treatment. If operative measures were to be undertaken upon every case of chronic suppuration of the middle ear that has been going on for two or three months, such operations would become as common as removal of adenoids. If thoroughly treated and the part carefully syringed through a large opening, it would get well. It was no good doing that if the opening was small. If the surroundings were good and the patient healthy, the discharge would dry up. The majority of these cases, in his opinion, could be cured by systematic and careful local treatment.

Dr. BRONNER defended the use of the dry method. Powders should not be used in too large quantities. Operative measures should not be resorted to until after all other sensible methods had been tried. Certainly otologists ought to know something about surgery. If a man operates upon a patient and endangers his life without first trying all proper methods, he is not a fit man to practise otology. He also thought a person, before advertising new methods of operation, should have the decency to look up the literature of the subject and acquaint himself with what had been done by others. He asked Dr. Milligan if

he had used the opsonic index or tried the effect of the serum treatment in any of his cases.

Dr. DUNDAS GRANT said it was very interesting for one who had practised in the pre-Stacke period to see the swing of the pendulum, with regard to radical operations, coming back to a more reasonable limit. Although the radical operation had saved many lives which were previously sacrificed, a good deal was then done that was far from useless, and many good results, in cases of chronic suppuration of the middle ear, were obtained without radical operation. He hoped that Professor Lucae's statement would be taken to heart, and that we should pride ourselves more on how few radical operations we are obliged to undertake instead of how many. In the earliest days of the radical operation the speaker had probably done as many, or more than others, but he was soon outstripped by the more energetic members of the profession. He drew attention to Dr. Knapp's observation that there was now a distinct tendency to diminution in the frequency with which operators on the continent did the radical mastoid operation. A good deal of the difference in the practice of operators seemed to be due to difference in opinions as to pathology. He was much struck by noticing a statement of Mr. Heath's, that attic disease could not be differentiated from that in the tympanum, and that both were dependent on mastoid disease, while Professor Politzer, on the other hand, said that in an overwhelming majority of cases of attic disease the suppuration is localised in the outer attic. Many of these cases could be perfectly well treated through the meatus without opening the antrum or mastoid cells. Dr. Grant dwelt upon the extent to which neglect might be the sole cause of the persistence of the suppurative disease, and quoted, as the most exaggerated instance which he had seen, the case of a man, aged fifty-nine, who had had suppuration in his ears for fifty years and which he had systematically neglected: under treatment the discharge practically disappeared in a couple of weeks, and the hearing was restored to such an extent as to surprise his friends. The fact was that he had a small polypoid mass of granulations in the postero-superior part of the tympanum, the membrane being nearly gone; the treatment consisted in removing these granulations, applying chromic acid to the root, and instilling alcoholic drops. In another case the discharge had lasted for twenty years and disappeared under local treatment. The length of time that a suppuration had existed was not, therefore, always an index of its intractability. He agreed with Dr. Milligan as to the value of the chromic acid treatment, and added that a small galvano-cautery point was sometimes of the greatest use. He was in accordance with those who insisted on attention being paid to the nose. While of the opinion that the radical mastoid operation was often unnecessary, there were cases in which the anatomical structure of the bone in the individual allowed of nothing short of it, as, for instance, in the case of extension of the cavities backwards, to which Mr. Ebsworth had given the name of accessory antrum. Mere removal of a portion of the postero-superior wall of the meatus would not be sufficient in such a case. With regard to ossiculectomy, while agreeing that its habitual practice was to be deprecated, he thought there was a limited scope for it, and he considered that it was justified if the ossicles were of no use and only formed an obstruction to the outlet from the attic and aditus so as to prevent the escape of diseased products that helped to keep up the suppuration. Under such circumstances good results were sometimes obtained from it without any further operation. He quoted a case in which the removal of such useless ossicles relieved a lady who had suffered from fearful

attacks of giddiness due to the presence of a cholesteatoma extending to the aditus and antrum, and which had caused erosion of part of the wall. After this removal the alcohol treatment, which had previously been ineffective, led to a drying up of the contents of the cholesteatoma and disappearance of the vertigo and the discharge. It had to be admitted that attic disease was by no means always confined to the outer attic, and that a cholesteatoma, such as was very frequently found there often, if limited to that space at the time, had a tendency to spread and did not permit of neglect. The removal of granulations in the attic had often brought a long-standing suppuration to an end. Dr. Grant, while fully appreciating the value of peroxide of hydrogen, had observed it occasionally to cause increase of the giddiness in the subjects of cholesteatoma. He considered intra-tympanic syringing as an invaluable means of treatment, and although he had tried many other forms of syringe for the purpose he had found Dr. Milligan's to be the most generally useful. In regard to artificial drums, he found that if they were moistened with parolene instead of water they had less tendency to cause a recurrence of discharge.

Dr. WHITEHEAD said that, speaking as a clinician, he found that, excluding those cases in which urgent or dangerous symptoms called for rational operation, a large number of cases of chronic otorrhœa still remain. Very many of these could be cured by conservative treatment and attention to nose, naso-pharynx, and accessory sinus disease. A residuum remains, which seems to him to divide itself into two classes. The first group shows granulations, extensive obstruction of the drum, and probably offensive discharge, with very defective hearing. This group requires as radical an operation as possible. He did not know of any form of treatment or any operation short of the complete removal of all granulations and all disease of the parts which would cure these cases. In a second group there was probably a simple perforation, fair hearing, and an odourless discharge. Such cases caused anxiety and mental debate as to the propriety of operation, and if so, what operation to perform. A few years ago a great wave of operative enthusiasm swept over the country, and he must confess he was rather encouraged to perform operations on these cases, following the example of Ballance and others, and although he cured his patients he often found very little disease, and frequently the hearing was lessened. The wave was now passing away. He thought they should give credit to those who had helped to repress this excessive operative enthusiasm. Now, with regard to this group mentioned they should be prepared to consider each case individually. A private patient living in healthy surrounding ran no risk, and in many cases no operation need be urged. A short time ago he had a typical case of bilateral chronic otorrhœa. After several consultations with eminent otologists all over Europe, it was decided to do a modified radical operation on one side. This was entirely successful. There was a complete cure and no loss of hearing, but the rest in bed and other things brought about a complete cure also on the side not operated upon. He thought the discussion would show that in a certain number of cases of chronic otorrhœa, a modified mastoid operation would effect as complete a cure of chronic suppuration as a complete radical operation without as much risk to the hearing.

Dr. LOGAN TURNER thought Dr. Milligan had got at the main thing in connection with so many of these cases, namely, accurate diagnosis, and if he could show that by cytological work we could arrive at that, a good step forward would have been taken. Each case had to be judged

by itself. Dr. Whitehead had divided his cases into two groups, but many of the cases were mixed. A great amount of discussion had been levelled at the head of one or more individuals. He thought we owed to Mr. Heath a great deal at the present time for bringing out this question of modifying the radical operation. In their own minds they must admit they had neglected operations other than the complete radical. In a very fair per cent. of radical operations hearing was improved. When the ossicles and membranes were removed, better hearing was obtained.

Mr. CHICHELE NOURSE said he was very glad to hear Dr. Milligan recommend so strongly the microscopical examination of the discharges from the ear. It was a plan he had adopted for some time whenever it was possible. He found that Dr. Wyatt Wingrave's examination of the discharges from each case was not only interesting in the way of bacteriological results, but often helpful as a guide to the treatment. He recollects one case, where a man had an old suppurative ear which contained some granulations; there was nothing noteworthy about the case, except that there were some enlarged glands below the auricle. The discharge was examined by Dr. Wingrave, who showed it to be a case of tuberculosis, and Mr. Nourse was able at once to advise radical measures. Another point suggested by the systematic examination of the discharge was one pointed out by Dr. Wingrave in an article in the *Journ. of Laryngol., Rhinol., and Otol.*, for the month of August, upon the presence of throat organisms in discharges from the middle ear. In many cases of chronic suppuration of the middle ear, particularly in children, the ear is continually being re-infected from the naso-pharynx; when that source of infection has been treated, the ear will heal without further trouble. No doubt instances of this have been met with in the experience of every one.

THE PRESIDENT OF THE SECTION (Dr. McKenzie Johnston) thought the discussion was one which was bound to be useful, even if it had not carried them an enormous distance. It seemed to him that there was a tendency to what he might call pessimism, and to think that the end of all things was a mastoid operation. He did not use the term "half measures" in the common acceptance of that term, he should rather have used the word "half-way house," where we could do all that was necessary. No one would advocate temporising in these most serious cases, and they clearly recognised that a radical mastoid operation was an absolute necessity in a certain number of cases. He desired to know whether something could not be found which would arrest the case and obviate the necessity for so many operations. He associated himself with the remarks against operating unless one was absolutely certain as to what could be done. The case that Dr. Dundas Grant mentioned of fifty years' standing showed that somebody had done wrong in letting that go on, but it showed also that something could be done in many cases which might be successful without extensive and serious operation. Dr. Smurthwaite had said the whole thing depended on free drainage; unfortunately we do not always succeed in getting that; if we could, it would certainly reduce, very materially, the number of mastoid operations.

Dr. MILLIGAN, in replying to the discussion, expressed his gratification at seeing Dr. McKenzie Johnston restored to health and occupying the presidential chair. He thought that the outcome of the discussion would be to cause a concentration of attention upon the most efficient means of conservative local treatment. He considered that the first essential was an increased accuracy in diagnosis, using all the aids we possessed, such

as objective examination and the bacteriological and cytological examination of discharge. He associated himself entirely with the remarks made by Drs. Logan Turner and Syme. He thought that if all ear hospitals were as fortunate as the Central London Throat, Ear, and Nose Hospital in having pathologists as distinguished as Dr. Wyatt Wingrave that progress would much more readily be made. The diagram he had just shown indicated the different types of cells found under varying conditions, and he regarded a cytological examination as likely to be of increasing value as an aid to both diagnosis and treatment in the future. He had carefully expressed his views upon the value of ossiculectomy in the course of his paper. He would urge more attention being paid to the condition of the mouth and the state of the teeth, as mouth organisms were by no means infrequently met with in discharges from the ear. His general experience was that only about 5 per cent. of the cases of chronic suppurative middle-ear disease seen in private, and from 10 to 12 per cent. seen in hospital required post-aural operative treatment. He thanked the various speakers for their kindly criticism.

Dr. HILL (London) thought the discussion would have a very important bearing, although at the outset it has been a little wide and has not crystallised out a little more. He would study Dr. Milligan's paper very carefully, for there was much more in it than appears immediately on the surface. In reference to the remark that Mr. Baber made, it must be remembered that Küster's name is associated with three slightly different operations. Shortly after publishing his first communication in 1889 he took Bergmann's hint and removed some of the superior wall and cells, so that the perfected Küster was a mastoidectomy plus antrotomy plus removal of the posterior and superior walls of the meatus. It is a *complete antrotomy*—mastoido-meatal antrotomy. He only stopped short of the radical operation in that he did not remove the attic wall. Mr. Logan Turner has said, no doubt correctly, that *most* of us had been wedded to the complete radical operation. The speaker and some others in the country, however, had been content with less radical measures in certain cases. For ten years operations short of the radical had been practised in America or in England. Sufficient credit has not been given to Küster, Stacke, von Bergmann, and others by Mr. Heath. It is to be regretted that under catchy titles cases have been reported as cures at too early a date, and claims made as regards improvement of hearing which are not likely to be endorsed by those who practise these or any methods. Dr. Syme was right in saying that much depends upon accurate diagnosis, and to operate in every chronic case of suppuration is most unwarranted. The experience mentioned by Mr. Whitehead is of very great importance. Dr. Smurthwaite would only operate where there is dead bone. It would be important to know how many times he has actually found dead bone in the course of this operation and what his total experience of post-aural operation amounts to. Surprise can only be expressed that he only operates in cases where dead bone is present. If he means carious disease of the bone that is a different matter. *Diseased bone* undoubtedly is found, and Dr. Milligan has given aids to the various diagnoses of diseased bone, and if it is that is referred to, I am absolutely at one with Dr. Smurthwaite. With regard to Dr. Bronner's question on the use of the vaccines, I have had Sir A. E. Wright's help in some cases where there have been relapses after operation and tubercle has been suspected: but even then we have not always been helped as much as we had hoped, though occasionally we have got valuable assistance. It is one of those directions in which we

may expect in the future considerable help. He was in substantial agreement with Dr. Grant and the moderation of operative zeal which he advocates. Dr. Whitehead's summary was most admirable; he has put the whole thing in a nutshell. As regards Dr. Milligan's remarks and statistics in reference to the relatively few cases of radical operation which he does, it appears to the speaker that the proportion was a very correct one.

Abstracts.

PHARYNX.

Ila, de Angelis (Naples).—*Phlegmonous Tonsillitis and its Mode of Formation.* “Archiv Ital. di Laringol.” Naples, July, 1906, p. 97.

An account of a series of experiments on dogs to ascertain the origin of this disease. The author begins his article with an account of the history of the subject, and especially of the discussion between Gongenheim and Dunbar Roy, in 1884, on the nomenclature, the former maintaining the separation between *phlegmonous tonsillitis* and *tonsillar abscess*, while the latter proposed to include both forms under *peri-tonsillar abscess*. A full account of the minute anatomy of the soft palate and tonsil follows, stress being laid on the convergence of the lymph system of the former towards the palatine recess. Before entering on his experiments the author had to ascertain in how far the canine palate and tonsil resembled the human. In the dog the palatine recess differs from the human only in being placed somewhat in front of, instead of above, the tonsil. There is a certain resemblance in the arrangement in both species of the glandular structure and invaginations of the mucous membranes. There is, however, in the human tonsil, as previously described by Arsimoles, a true diverticulum of the mucous membrane, in which the author has found tonsillar tissue more abundant than has hitherto been stated. The mucous glands are quite separate, and above the hilum of the tonsil. The passage of micro-organisms in the dog always took place from the hilum to the tonsillar tissue proper, and not to the mucous glands.

The author draws the following conclusions from his experiments: Phlegmonous tonsillitis has its seat always outside the tonsil proper as the result of the entrance of micro-organisms into crypts of the hilum, which have become united by cicatrical or inflammatory processes. From this point the organisms are directed towards the *recessus palatinus*. On this account, while the hilum feels the first effects of the infection the tonsillar tissue proper escapes. This assertion is supported by the fact that in many cases the later phases of the disease take place in the pre-styloid space (Gradenigo), whence the abscess may open into the pharynx. No organisms having been found in the mucous glands shows that these at first resist the invasion, but at length may be attacked, and are attacked in all cases in which the purulent collection escapes above the tonsillar fossa. Finally, these results tend to explain the varying course followed by the same process in different persons.

James Donelan.

NOSE AND ACCESSORY SINUSES.

Johnston, R. H.—*The Treatment of Chronic Antrum Disease.* “Boston Med. and Surg. Journ.”, June 6, 1907.

The author distinguishes between empyema of the antrum and chronic sinusitis. In the former the removal of a diseased tooth will be sufficient to bring about a cure by drainage. Without considering the radical operation, he discusses the relative advantages of the alveolar and intra-nasal methods of treatment. The author prefers to operate under cocaine and adrenalin; he removes the anterior end of the inferior turbinal and trephines obliquely beneath that body. Through the trephine hole curetting can be carried out and applications made. He has obtained the best results with occasional curetting and persistent washings with mild antiseptic solutions. *Macleod Yearsley.*

Pasch (Belzig).—*Foreign Bodies in the Nose as the result of Accident.* “Münch. med. Woch.”, August 6, 1907.

A workman was pulling a chain, which broke. He felt a blow on the nose and a sensation as if he had lost some teeth. His nose was cut, and blood ran from the nostril. It was found at the end of two weeks that there was a link of a chain in his right nostril, whose presence there was not suspected, the only nasal symptom being obstruction. The question arose as to whether the link had been snuffed into the nose or had rebounded into it after striking the ground. *Dundas Grant.*

LARYNX.

Somers, L. S.—*The Aural and Laryngeal Complications of Typhoid Fever.* “Therapeutic Gazette,” June, 1907.

The majority of typhoid patients presenting laryngeal complications have superficial ulceration, limited in area and healing without trouble. Its frequency varies from 1·5 to 29 per cent. according to the virulence of the epidemic. The serious complications—œdema, perichondritis, stenosis, and abscess formation—are discussed.

The ear is involved sufficiently to call for active treatment in 2 to 4 per cent. of cases, but, undoubtedly, changes of minor grade occur. Usually the ear complications are the result of extension up the Eustachian tube from the naso-pharynx. They may be simple congestion, catarrhal exudation, or purulent otitis media, with the attendant complications and sequelæ.

External ear complications are rare, but furunculosis may occur. Middle ear suppuration usually develops during the fourth or fifth week. The early development of mastoid trouble is characteristic.

In patients with marked stupor the ears should be carefully examined. *Macleod Yearsley.*

EAR.

Voss, F.—*On Non-interference with the Thrombus in Cases of Lateral Sinus Thrombosis.* “Zeitsch. f. Ohrenheilk.”, vol. liii, part iv, 1907.

In cases of sinus thrombosis following an acute otitis which has already resolved the author advises a direct exposure of the sinus, in all

other cases a preliminary antrectomy or a radical mastoid operation. Any unnecessary handling, *i.e.* palpation of the exposed sinus, is harmful. The various forms of bone forceps used are dangerous; less injury is likely to be caused if one uses the gouge and mallet. When suspicion of sinus thrombosis exists, expose the sinus and test with aspiration needle; if diagnosis confirmed first ligate the jugular vein in the neck and then proceed to the full exposure of the sinus, following it 1 cm. into healthy part peripherally and into the neighbourhood of the jugular foramen centrally. The writer regards the practice of clearing out the thrombus from the sinus as an unnecessary interference because complete clearance of the septic material is impossible; the operation may occasion severe haemorrhage with consequent collapse, and it is quite possible to injure the brain with the sharp spoon.

The procedure recommended is to incise the sinus wall within $\frac{1}{2}$ cm. of the end of the thrombus and then to cut away the whole of the outer sinus wall with scissors. The thrombus is left, but there is now free outlet for any infected matter, a gouge drain is laid over the area and, in some cases, the skin wound partially sutured; finally, do not perform too frequent dressings. Statistics are given to show that the following out of the above principles has been very successful when compared with other methods.

Lindley Sewell.

Lange, W.—*An Examination of the Auditory Apparatus in a Man dying from Fracture of the Base.* “Zeitschr. f. Ohrenh.” vol. lxi, part I, 1907.

The course of the fracture was through the petrous portion of the temporal bone, appearing on its anterior surface in a line about parallel to its superior border. Examination of a series of sections revealed, in the external auditory canal, many fissures running upwards and inwards, its lumen containing blood-clot, with epidermic scales and a certain amount of round-celled infiltration about the clot. The membrane was torn irregularly in its superior part. The malleus and incus were dislocated outwards, but the stapes were intact, as also the membrane of the round window. The lumen of the middle ear was filled with blood-clot and inflammatory exudate. The labyrinthine capsule was quite intact, and although the preparations did not show the condition of the membranous labyrinth very well, neither in the peri-lymphatic nor the endolymphatic spaces was there any free blood. The auditory nerve, both cochlear and vestibular branches, was torn across at the bottom of the internal auditory meatus, the interstices of the torn nerve-bundles being filled with blood-corpusecles and round cells. In the region of the tear the nerve-fibres showed no change when compared with those in the intact part of the nerve; somewhat centrally from this was a circumscribed collection of corpora amylacea.

The facial nerve was quite intact, this fact probably being due to its being tougher than the auditory. The writer regards the presence of the “amylaceous bodies” as the result of some post-mortem injury. Some excellent plates illustrating the conditions found are given.

Lindley Sewell.

Sidley, T. K. (Peoria).—*Otitic Brain Abscesses.* “Med. Record,” July 20, 1907, p. 122.

The author considered that surgical interference in brain complications due to ear disease was unsatisfactory in a large proportion of cases,

chiefly because the symptoms and serious condition were not recognised until the focal symptoms had become established and the meninges were involved. Brain abscesses had an unknown beginning and many developed from diseases of the tympanic cavity that were regarded as simple and not serious. The deduction was that all cases of suppuration of the middle ear should be considered serious and should be treated without delay.

Lanzun-Brown.

Hechinger, Julius. — *Noma of the Ear.* “Arch. f. Ohrenheilk.” Bd. 70, Heft 1 and 2, p. 7.

The patient was a rickety child, aged two, the subject of chronic suppuration in both ears. Following upon an attack of measles and while the rash was still out, the left side of the face became swollen and oedematous. A day or two later gangrene of the soft tissues under the left auricle appeared, and gradually spread to the adjoining regions of the cheek, neck, mastoid, and auricle. Death occurred within a week of the first appearance of the gangrene.

In addition to the necrosed area under the ear, the autopsy revealed thrombosis of the left superior petrosal, left sigmoid, and superior longitudinal sinuses, together with purulent pachy- and lepto-meningitis in the neighbourhood of the left petrous bone. Microscopical examination showed the dead and the living tissues to be interpenetrated by three distinct micro-organisms: a coccus, a curved bacillus, and a very fine thread-like organism. This last, which is classified by Perthes as a streptothrix, is looked upon by that observer as the prime cause of noma. Growing in the living tissue the thread-forms surround and kill the tissue-cells and so induce gangrene. For the development of the organism a combination of three factors is necessary: (1) a depression in vital nutrition, (2) the period of childhood, and (3) the recent recurrence of an exanthem-like measles.

Dan McKenzie.

Clinical Society of the Brussels Hospitals, July 13, 1907. — *Wound of the Meninges, of the Brain, and of the Left Lateral Ventricle by a Foreign Body having penetrated the Ear; Meningitis; Trepanning; Cure.*

Dr. Hamaide showed a boy, aged eleven, into whose left ear, on May 18 last, one of his comrades had thrust the whalebone of an umbrella. On May 21 the wounded child attended the out-patient department of M. Cheval with symptoms of well-defined meningitis. Examination of the left auditory canal revealed that the tympanum was intact, but that the epitympanum was perforated. M. Cheval saw him again on May 25. He then made a large opening in the bone of the superior wall of the canal and of the roof of the tympanic cavity. At this level a perforation was found corresponding to a breach of the dura mater; a grooved cannula penetrated without force some centimetres into the brain, which was in hypertension, and did not beat. A thrombosed vein of the dura mater was apparent; near the end of the petrous bone there was a large patch of pachymeningitis, where was a quantity of liquid, which was liberated. M. Cheval sought in vain, through the fistula in the dura, for pus. He then punctured the left lateral ventricle, from which immediately flowed a turbid liquid. At the same time the hypertension of the cerebral mass disappeared. The fistulous passage of the brain was then drained by means of a strip of iodoform gauze, reaching

into the ventricle. The dressing was lightly compressive. On May 26 the fever fell. The child recovered completely. Analogous cases are excessively rare. A case is known of a wound of the labyrinth by an *eclat de fonte* having traversed the tympanum and causing a fatal meningitis. Another analogous case of fatal meningitis is related of a workman who accidentally forced the stem of a pipe into the tympanic cavity.

Lauzun-Brown.

Randall, A. (Philadelphia).—*Dionin in Chronic Catarrhal Deafness.*
“Arch. of Otol.”, vol. xxxvi, Nos. 1 and 2.

Thiosinamine and fibrolysin have not given good results in the writer's practice, and he advises dionin on account of its value in causing absorption of plastic products in the eye. A 5 per cent. solution causes little irritation if blown up through the Eustachian catheter.

Dundas Grant.

Spratt, C. N. (Minneapolis).—*Report of a Case of Lepto-meningitis, with Onset of Symptoms Sixteen Days after a Radical Operation, the Infection reaching the Meninges along the Facial Nerve.* “Arch. of Otol.”, vol. xxxvi, Nos. 1 and 2.

Discharge remained for four months after an acute otitis, then otalgia, vertigo and facial paralysis supervened. Radical mastoid operation and Thiersch skin-grafting were performed. The after-course was satisfactory for sixteen days when headache with chills and continuous high temperature came on. The dura was exposed by operation and opened, but there were no signs of meningitis except injection of the vessels. Death took place and yellow exudation was found in the internal auditory meatus extending to the base and outer surface of the brain. The pneumococcus was found in sections and films.

Dundas Grant.

Lewis, R.—*A Case of Mastoiditis Complicated by Thrombosis of the Left Lateral Petrosal and Cavernous Sinuses.* “Arch. of Otol.”, vol. xxxvi, Nos. 1 and 2.

The case simulated pneumonia, but rigor occurred with an oscillating temperature. Two days later there was tenderness of the mastoid extending downwards along the line of the internal jugular. Radical operation revealed thick malodorous pus and absolute obliteration of the sigmoid sinus. The writer exposed the sinus half-way towards the torcular and curetted it, and then removed the internal jugular vein. There was no clot, but the walls were infected with streptococci. Three days later the conjunctiva was swollen and congested, suggesting cavernous sinus thrombosis. The opposite lateral sinus was then explored. There was no clot but the flow of blood was scanty. The patient died suddenly an hour after being returned to the ward. The writer thought he had dislodged a clot in the second sinus and that before curetting he ought to have ligatured the jugular vein. *Post mortem* a large thrombus was found in the right auricle extending into the ventricle. Most of it was dense and white. The cause of death was really cardiac thrombosis, not embolism.

Dundas Grant.

THE

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

THE

DIFFERENTIAL DIAGNOSIS OF TUBERCULOSIS, SYPHILIS, AND MALIGNANT DISEASE OF THE LARYNX.¹

By SIR FELIX SEMON, K.C.V.O., M.D., F.R.C.P.LOND.,
Physician Extraordinary to His Majesty the King.

WHEN I summarise the results of my experience concerning the differential diagnosis of tuberculosis, syphilis, and malignant disease of the larynx by saying that this differential diagnosis usually is easy, not rarely difficult, and in exceptional cases for a time almost impossible, I merely state what is known to every one of you. There is very little danger of mistaking the so-called "typical" cases. Even the merest tyro in the field of laryngoscopy will readily and correctly enough diagnose laryngeal tuberculosis if, in the case of a hectic-looking young individual with a characteristic history and with well-characterised constitutional symptoms, he finds the larynx pallid, the epiglottis and the artænoid cartilages changed into rounded, semi-transparent tumours, or the larynx wholly or in part superficially ulcerated. There is equally little danger of mistaking the manifestations of tertiary syphilis for either tuberculous or malignant disease, when deep ulceration, without tumefaction in the neighbourhood, leading to partial

¹ Introduction to a discussion in the Section of Laryngology and Otology of the British Medical Association, Exeter, July, 1907, by kind permission of the Editors.

destruction of the organ, or when great disfigurement of the part, owing to cicatricial adhesions, are seen, concomitantly with rupia or some other form of tertiary skin eruption, and with evidence of present or past syphilitic disease in other parts of the body. Again, even a beginner is not likely to diagnose syphilis or tuberculosis when in a man of advanced age he finds a large ulcerating tumour in the larynx, accompanied by great enlargement of the cervical lymphatic glands on one or both sides of the neck, foetor of the breath, frequent small haemorrhages from the throat, general cachexia, and pain shooting from the throat into the ears.

It is not for the consideration of such cases, I think, that the present discussion has been arranged, but rather for the analysis of those categories of the three diseases named in which either the appearances are so deceptive as to induce even an experienced observer to form an erroneous conclusion, or in which the signs are so ambiguous as to make the expert pause before committing himself to a definite opinion, or, finally, in which no clue is offered by either the local or the general phenomena as to the true nature of the case.

With these three categories I shall deal in my introductory remarks. I intend to confine myself to the discussion of such points of which I have had personal experience, without for a moment asserting that they exhaust the list of all the differential diagnostic difficulties which may be encountered. Further contributions towards the subject will be made by my co-referee, Dr. Jobson Horne, and others will be offered in the course of the discussion which is to follow.

The points upon which I shall touch are :

- (1) Congestion of the vocal cords as an initial sign of tuberculosis, syphilis, and malignant disease: (a) Bilateral; (b) unilateral.
- (2) The difficulties of diagnosis between tuberculous, syphilitic, and malignant laryngeal tumours.
- (3) Laryngeal tuberculosis in middle-aged or old people as a source of error in the differential diagnosis between tuberculosis, malignant disease, and syphilis of the larynx.
- (4) Difficulties of differential diagnosis between all three diseases when appearing in the form of infiltration.
- (5) Combination of two of the diseases under consideration, and consequent diagnostic difficulties.

(1) CONGESTION OF THE VOCAL CORDS.

(a) *The bilateral variety.*—Congestion of the vocal cords, when bilateral, is, of course, in the great majority of cases, due to catarrhal influences or to overwork of the organ, but by no means rarely may be, as you all know, a sign of secondary syphilis or of beginning tuberculosis of the larynx. The laryngoscopic image in such cases is anything but characteristic, and in itself—except in the extremely rare instances in which mucous patches are visible in the larynx—does not throw any light upon the real nature of the affection. In syphilis, as well as in tuberculosis of the larynx, it often is only the obstinacy of the congestion, and its refractoriness to treatment, which after a time may lead the observer to suspect that he has to do with something else than ordinary laryngeal catarrh. The extremely minute characteristics of syphilitic laryngeal catarrh, which have been described by some authors, have not been confirmed by laryngologists of the greatest experience, and I certainly would not take upon myself, unless I saw actual condylomata in the larynx, to make the diagnosis of secondary syphilis of the part from laryngoscopic examination alone. Practically the same applies to the obstinate laryngeal catarrh which often is the forerunner of more characteristic changes in laryngeal tuberculosis, though in a few such cases the combination of congestion of the vocal cords with marked pallor of the pharynx and of the epiglottis may induce an experienced observer to think of tuberculosis in the first place. The differential diagnosis between the two affections will only be arrived at, as a rule, from concomitant local and general symptoms. If there be mucous patches in the fauces or pharynx, together with other characteristic symptoms of secondary specific disease, with a distinct history of primary syphilis, and with a roseolar or a papular syphilitide on the skin, the laryngeal catarrh is, of course, also likely to be of a syphilitic nature. If there be characteristic tuberculous signs in the lungs, together with hectic temperatures and the presence of bacilli in the sputum, the observer will not hesitate long in registering the laryngeal catarrh amongst the tuberculous phenomena, although in neither case ought one to forget the possibility of a *simultaneous* existence of both the diseases in the system, or of a simple catarrh supervening in a tuberculous or syphilitic individual.

Only in extremely rare cases will bilateral congestion of the vocal cords be the forerunner of malignant disease of that organ; but the possibility of such an occurrence must not be entirely left

out of consideration. I shall never forget a case of that kind, the development of which led to rather serious consequences. A middle-aged gentleman consulted me on account of chronic hoarseness from which he had suffered for several years. On examination the vocal cords were seen to be congested, granular, and thickened. There was no difference between the two sides; the movements of the cords were perfect. There was no history or any signs of syphilis or of tuberculosis, and the diagnosis seemed to be a perfectly straightforward one of chronic laryngitis. The patient's occupation, so he told me, prevented him from at once undergoing treatment for his complaint. A few weeks after the consultation he went to insure his life. The examining physician, who happened to be one of our most esteemed authorities on laryngology, noticed the patient's hoarse voice and examined his larynx. He, too, arrived at the diagnosis, chronic laryngitis, and did not consider this to be any reason against accepting the patient's life. Within one year, however, from the insurance being effected, the patient died from undoubtedly malignant disease of the larynx. It was not unnatural that the medical officer should have been upbraided by his directors for having accepted the life as a good one, particularly in view of the fact that the sum insured was a heavy one. Fortunately I could come to his assistance and certify that at the time when the insurance was effected it was quite out of the question to diagnose malignant disease of the larynx. I have never seen a similar case, but the gravity of the situation incurred makes it certainly desirable to keep the contingency in mind in future cases.

(b) *The unilateral variety.*—It is a common rule amongst laryngologists, well founded upon experience, that a unilateral congestion of a vocal cord, unless caused by traumatic influences, should be looked upon as a danger signal with regard to the possible development of tuberculosis, syphilis, or malignant disease of the larynx, and this rule I certainly have found a very useful one in my own experience. But one must not consider this rule to be an *infallible* one, nor look upon every case in which unilateral congestion of a vocal cord is present as *invariably* leading to more serious development. I have myself seen several cases in which the unilateral congestion either disappeared or remained stationary without anything more serious occurring, and Professor Rosenberg, of Berlin, has recently described¹ some such cases from his own experience. The occurrence of isolated congestion of

¹ "Les Affections Unilatérales des Cordes Vocales," *Archives Internationales de Laryngologie*, tome xx, No. 4, July-August, 1905.

one vocal cord, therefore, should be taken, I think, as a valuable sign, putting the observer on his guard with regard to possible further development, but not as sufficient to threaten the patient or his friends with predictions of certain further mischief.

Even when unilateral congestion of a vocal cord is the forerunner of more serious developments, it is impossible to say from laryngoscopic appearances whether this mischief will be of a tuberculous, syphilitic, or malignant character, and, as in the bilateral cases, all concomitant circumstances must be taken into consideration to arrive at a correct diagnosis.

(2) THE DIFFICULTIES OF DIFFERENTIAL DIAGNOSIS BETWEEN THE THREE DISEASES WHEN APPEARING IN TUMOUR FORM.

That laryngeal tuberculosis may appear in the form of a well-circumscribed definite tumour has only become generally known in the course of the last twenty years, although a few isolated cases had been already published at an earlier period. Recently their number has considerably increased. Generally speaking, however, this form is, in proportion to the great frequency of laryngeal tuberculosis, very rare, and many experienced laryngologists probably have never seen a single instance of its occurrence. Tuberculous tumours may arise at any time of life, and may start from any part of the larynx. Their appearance is not at all characteristic, whilst their size varies from that of a split-pea to that of a small marble. They are covered by normal mucous membrane, with a smooth or somewhat granular surface, and a grey, reddish, yellowish, or whitish colour. Their form usually is a rounded one. Sometimes they are semi-globular, sometimes almost globular. They thus bear a great resemblance to sessile fibromata, commencing malignant growths, and to gummata in the pre-ulcerative stage. The difficulty of distinguishing between tuberculous and malignant growths is the greater, first, because tuberculous tumours occur in cases in which there may be no demonstrable pulmonary lesion and no cough, so that no examination for bacilli can be made; and, secondly, because the form of tuberculous tumours is, as a rule, so rounded and their surface so smooth that it is often enough impossible to remove a fragment for the purposes of microscopic and bacteriological examination. Thus occasional errors will be almost unavoidable, and the difficulties will be particularly great if tuberculous tumours arise in elderly people, and in situations where fibromata are not likely to

occur, such as in the ventricle of Morgagni, the posterior wall of the larynx, the sub-glottic cavity below the anterior commissure. Under such circumstances they are very apt to be mistaken for malignant tumours.

I myself must plead guilty to having once performed thyrotomy for what appeared to be an infiltrating malignant tumour below the anterior commissure of the vocal cords, but which on microscopic examination of the removed growth turned out a tuberculous tumour. (Such errors are the more annoying on account of the liability to tuberculous infection of the wound after thyrotomy performed in tuberculous cases. This actually happened in the case just referred to. Fortunately, after energetic scraping and application of lactic acid, the ultimate result was very satisfactory, but such cases show the imperative necessity of being mindful of the resemblance between tuberculous and commencing malignant tumours.) In such cases it will be desirable—unless the situation of the growth should render immediate interference unavoidable—to watch the suspicious growth for some time, and see from the course which it takes whether it is more likely to be tuberculous or malignant. Of course, iodide of potassium should be given at once to exclude syphilis. Should the diagnosis still remain doubtful, intra-laryngeal probatory removal and microscopic examination should, if possible, be resorted to. If this, however, should also be impossible on account of the situation and general configuration of the growth, the best policy to be adopted is, I think, to explain to the patient and his medical adviser that longer waiting may have disastrous consequences, that the only way to get rid of the tumour is by radical operation, and that, if the growth should turn out to be tuberculous, tedious after-treatment, and possibly some further surgical interference, may become unavoidable.

As already incidentally stated, gummata in the pre-ulcerative stage might be confounded with either tuberculous or malignant new growths. Gummata occur in the larynx in three forms: First, as a nodular syphilide, "in which a number of rounded nodules of the size of a shot up to that of a pea are found, sharply defined from, and somewhat elevated above their neighbourhood, and generally situated so close to each other that they sometimes nearly seem to coalesce. The covering mucous membrane, which is in the beginning normally coloured, gradually acquires a more yellowish tint" (Mauriac). Secondly, as a gummatous infiltration, of which I shall speak later. Thirdly, as a "circumscribed gumma," which may attain the size of a pigeon's egg, and which is, until its

sudden and complete breakdown occurs, covered by apparently intact and, as a rule, yellowish-coloured mucous membrane. In its neighbourhood an area of bright congestion, or even oedema, often exists. These gummata are apt to occur at a rather late period of life when a primary infection may *bonâ fide* have long been forgotten, or when no history of infection appears to exist at all. This fact, taken in conjunction with the patient's age and the aspect of the larynx, may give rise to a suspicion that the growth is of malignant nature. The effect of the administration of iodide of potassium, however, and—in cases in which the use of this drug has been omitted—the extremely sudden and complete breakdown of the tumour and its replacement within two or three days by a deep and extensive dirty ulcer, will soon enough clear up the diagnosis.

(3) LARYNGEAL TUBERCULOSIS IN MIDDLE-AGED PEOPLE.

Whilst laryngeal tuberculosis in young people is extremely unlikely to be mistaken for cancer of the larynx—although in very exceptional cases even then such errors may occur—the difficulties of differential diagnosis sometimes are considerable in cases of middle-aged or old people. To begin with, the occurrence and even comparative frequency of tuberculosis in middle-aged and old people is not sufficiently realised by some observers, and secondly, the laryngeal phenomena in such cases are not nearly so characteristic as the appearances seen in typical cases of laryngeal tuberculosis occurring in young people. The observer, being very naturally bent in favour of the diagnosis of malignant disease, when he sees an obscure ulceration in the larynx of a middle-aged or elderly person, is very likely to make a mistake. No better proof can be given of the truth of what I have just said than the statement, which I find in Grünwald's recent work on the treatment of laryngeal tuberculosis¹—namely, that out of ninety-three radical operations undertaken for the cure of what was supposed to be laryngeal cancer, in not less than seventeen the diagnosis turned out to have been mistaken—that is, in nearly 20 per cent., and if reliable statistics existed as to the total number of diagnostic mistakes which had been committed in operations for what was supposed to be malignant disease of the larynx, and which turned out to be tuberculosis, I have not the remotest doubt

¹ "Die Therapie der Kehlkopftuberkulose." München: J. F. Lehmann, 1907. P. 55.

that the percentage would be even greater. I here include, of course, tuberculous tumours as well as tuberculous ulcers. True, with sufficient care, the great majority of these mistakes can and ought to be avoided. Thus, even if the laryngoscopic appearances should be ambiguous, and neither characteristic of tuberculosis nor of cancer, other phenomena, such as enlargement of cervical lymphatic glands, concomitant signs in the lungs, the presence of tubercle bacilli in the sputum, rise of temperature, etc., will be of much assistance; and, further, microscopic and bacteriological examination of the secretion covering the laryngeal ulcer, and of fragments of the latter itself removed by means of curretting, will usually clear up the doubt previously entertained; but after all a number of cases remain, in which concomitant symptoms are conspicuous by their absence, and in which mistakes may easily be committed.

The differential diagnosis between tuberculous and syphilitic ulceration in middle-aged people may also offer considerable difficulties. Broadly speaking, it may be said that tuberculous ulceration is distinguished by the pallor of the affected parts, syphilis by its decidedly inflammatory character; that the development of the tuberculous ulcer is slow, that of the syphilitic very rapid; that phthisical ulcers are usually small and situated on both sides of the larynx, whilst syphilitic ulcers are, as a rule, from the very first comparatively big, solitary, and unilateral; and, finally, that the syphilitic ulcer is, as a rule, much deeper and more sharply limited than the tuberculous, which gives the part a more worm-eaten appearance. Again, however, it must be said that the characteristics of the tuberculous ulcer in middle-aged and old people often are not nearly so well marked as in young people, and that the general constitutional symptoms, their accompanying signs in other parts, and bacteriological examination ought all to be made use of for the differential diagnosis. Should, as would now seem likely, the *Spirochæta pallida* be the real cause of syphilis, and should its presence become readily ascertainable, this will, of course, be a further important aid towards the differentiation of the two diseases.

The differential diagnosis between deep syphilitic ulcers and malignant disease does not, as a rule, offer great difficulties, because even in the ulcerating stage of cancer there is usually much greater tumefaction of the margins of the ulcer than is found in the tertiary syphilitic ulcer of the larynx; and, additionally, if the cancer belongs to the extrinsic variety, the enlargement of the

corresponding cervical lymphatics is generally much more considerable than met with in syphilis. There are, however, some cases in which the diagnosis may be very doubtful from the mere laryngoscopic aspect, and in which administration of iodide of potassium and microscopic and bacteriological examination of fragments removed may be necessary to clear up the difficulty.

(4) DIFFUSE INFILTRATION.

The greatest diagnostic difficulties certainly are encountered when the three diseases present themselves in the form of a diffuse infiltration, occupying, as they do as a rule in such circumstances, either the posterior wall or one side of the larynx. May I confess that I have been sometimes equally surprised and amused when such cases have been shown in societies in order to obtain diagnostic help, and when some members cheerfully committed themselves after one such fugitive examination as is possible in the meeting room of a society to a definite diagnosis as to the nature of an obscure infiltration? True, in some such cases concomitant signs may be extremely valuable, and greatly facilitate differential diagnosis, as, for instance, the simultaneous existence of tuberculous chest disease, of skin eruptions belonging to the tertiary stage of syphilis or other signs of that disease, or the co-existence of so considerable an enlargement of cervical lymphatic glands as is commonly met with only in malignant disease; but when such signs are absent, and when one has to make one's own diagnosis from the laryngoscopic aspect of a diffuse infiltration alone, occupying either the posterior wall of the larynx or one of its sides, being in some cases still covered with normal mucous membrane, or in others already superficially ulcerated, one cannot, according to my experience, be cautious enough in not committing oneself to a definite diagnosis from one examination. To give but one illustration of this: You all know the common experience, that unusual cases usually occur in couples. I shall never forget the cases of two men, each aged fifty, who by chance consulted me on the same morning, one immediately after the other. In each case the complaint was about difficulty in swallowing, about thickness and weakness of voice, occasional slight pain in the throat, not shooting into the ears, and about great increase of secretion from the throat. The laryngoscopic appearances in both cases were so similar that the cases appeared to be, as it were, twins. In both cases the posterior wall of the larynx was enormously thickened,

and the movements of both arytaenoids, which were much swollen and congested, were somewhat impeded in either direction. In neither case was there any considerable cachexia or any swelling of the cervical lymphatics, and in both cases there was no distinct history of syphilis. Yet, iodide of potassium being at once prescribed in both cases, one patient was cured within a few weeks; whilst in the other, after a short temporary improvement, the unmistakable symptoms of malignant disease developed, to which the patient ultimately succumbed.

These cases, which occurred at a comparatively early period of my practice, were a lesson for ever cautioning me against rashly making any definite diagnosis in cases of infiltration of the larynx. As a rule, after a certain period of observation, coupled with investigation of all concomitant signs and symptoms, and administration of iodide of potassium, the diagnosis is cleared up. A few cases, however, remain obscure till the very end, and even at the *post-mortem* table cannot be decided, so that only subsequent microscopic examination may settle the actual nature of the case. An instance of that sort was reported many years ago by Dr. Samuel West.¹

The truth of the matter is that the perichondritis, which may be engendered in cases of syphilis and tuberculosis as well as in malignant disease, in some cases so completely masks the signs of the original affection as to render the diagnosis from the laryngoscopic aspect alone practically impossible; and the difficulties of differential diagnosis are the greater, because not only perichondritis from other causes than those which form the subject of to-day's discussion, but also obscure *infective* inflammations, of which as yet very little is known clinically, but which are very unpleasant realities, may laryngoscopically be perfectly indistinguishable from tuberculous, syphilitic, or malignant infiltration.²

Nor ought one to judge too rashly from a certain degree of improvement occurring in the appearances and in the symptoms from the use of iodide of potassium. That drug, as you know, has a resorbing influence, not only upon syphilitic, but also upon inflammatory products of other origin, and fallacious amelioration not at all rarely takes place in cases of malignant disease which is but too quickly doomed to disappointment. Only when actual disappearance of the doubtful infiltration has taken place under

¹ *Path. Soc. Trans.*, vol. xxxviii, p. 35.

² Semon, "Some Points in the Diagnosis and Treatment of Laryngeal Cancer," *Brit. Med. Journ.*, February 2, 1907, pp. 241, 242.

the use of the drug is the diagnosis of syphilis justified. From the moment that the infiltration begins to break down the diagnosis, of course, becomes easier through the fact that microscopic and bacteriological examination of the secretion and of fragments of the base and margins of the ulcer removed by curetting or by forceps, places a number of additional diagnostic weapons in the hands of the practitioner. Still, as the literature of our specialty shows, diagnostic errors in cases of this kind are anything but uncommon.

My final remarks apply to

(5) THE COMBINATION OF TWO OR MORE OF THE DISEASES UNDER DISCUSSION IN ONE AND THE SAME PATIENT, AND TO THE DIAGNOSTIC DIFFICULTIES ENGENDERED THEREBY.

The possibilities here occurring are manifold, and capable of every conceivable permutation. A tuberculous patient may become syphilitic or affected by malignant disease. A syphilitic patient may acquire tuberculosis or cancer. A victim to malignant disease may—theoretically at any rate—fall a prey to either tuberculosis or syphilis, although seeing the age at which malignant disease usually occurs, subsequent infection with either tuberculosis or syphilis will in the nature of things but very rarely occur. Even a simultaneous occurrence of all three diseases in one and the same patient is by no means beyond the limits of possibility, although I am not aware that a case of this kind has actually been recorded. Again, when two of the diseases named occur in one and the same person, it is possible that their manifestations may either arise in one and the same organ and at one and the same time, or that they may follow one another, or that the manifestations of the one may appear in one part of the body and those of the other in another. Thus a patient may simultaneously have tuberculous and syphilitic ulcers in his larynx, or he may have a tuberculous infiltration in his larynx and an eruption of roseola on his skin. A patient suffering from pulmonary tuberculosis may at the same time be afflicted with cancer of the larynx, or a patient suffering from cancer of the liver may at the same time show, in the form of adhesions and loss of substance, or even in the form of fresh gummatous ulceration, the effects of constitutional syphilis in his larynx. Or, again, phenomena of deep destructive ulceration combined with tumefaction in another part of the larynx may represent the simultaneous occurrence of both syphilis and cancer, but this event is a much rarer one in the larynx than it is in the tongue.

In former days it was a sort of axiom that tuberculosis and malignant disease were mutually exclusive of one another, and never occurred simultaneously in one and the same person. This notion, however, has long since exploded, and I have myself recorded a case in which,¹ as shown by the *post-mortem* examination, laryngeal cancer co-existed with pulmonary tuberculosis.

It need not be said that the simultaneous occurrence of two of the diseases under consideration will, as a rule, greatly enhance the diagnostic difficulties. Even when their manifestations do not appear simultaneously in the larynx, but only one of them produces pathological changes in that organ, whilst the other constitutional disease affects quite another part of the body, the diagnosis may be thereby rendered much more difficult. Take, for instance, the case of a person suffering from pulmonary tuberculosis and obstinate catarrh of the larynx. The presumption would, of course, be in favour of tuberculosis of the larynx as well, more particularly so when a bacteriological examination has been made and tubercle bacilli have been found. Yet the laryngeal congestion may be due to secondary syphilis, the pulmonary and bacteriological signs notwithstanding. The possibility of such a combination, therefore, ought always to be remembered, and tentative anti-syphilitic treatment should be introduced if there be the slightest doubt about the matter. Nor should, if there be any ulceration in the larynx, an examination of the secretion from it for *Spirochæta pallida* be neglected. Again, take a case like the one above referred to—namely, the case of a middle-aged man, with a suspicious growth in the larynx, who has at the same time undoubted tuberculosis of the lungs and tubercle bacilli in his sputum. The presumption naturally would be that the laryngeal disease, too, was tuberculous. Still, as this and a few other cases show, this presumption is not infallibly right, and the possibility of a simultaneous occurrence of laryngeal cancer with pulmonary tuberculosis ought not to be lost sight of.

Even more difficult are the cases in which manifestations of two of the diseases co-exist in the larynx. Under such circumstances the characteristic phenomena of each of them may, and do, become completely blurred, and it will be only from the employment of every kind of additional information that a correct diagnosis may ultimately be formed. In not a few instances, however, of this kind it will be very difficult, or may, indeed, be impossible, to unravel the true nature of the combination. Under all circum-

¹ *Reports of the Throat Department of St. Thomas's Hospital*, 1885, vol. xiii, p. 47.

stances, in obscure cases the possibility of a previous syphilitic infection, even if there be absolutely no history of such, should be kept in view, and iodide of potassium should be given as a help towards clearing up the diagnosis. A thorough examination should be made, not only of the larynx, but of the patient's whole body, and every help that could be afforded by investigation of the patient's temperature and weight, by the family—and his own previous history, by microscopic and bacteriological examination of the secretion and fragments removed, should be made use of.

Many a time in my experience have I been painfully aware of the imperfection of our knowledge concerning the differential diagnosis of tuberculosis, syphilis, and malignant disease of the larynx. Often enough have I keenly felt my responsibility when I had to advise as to the performance of a radical operation, and when I was by no means absolutely certain of the true nature of the disease in the individual case. But only when preparing this paper for your consideration has it become quite clear to myself how great and manifold are the difficulties which we may encounter in trying to establish a differential diagnosis between the three diseases. Let me hope that in the discussion following these remarks further light may be thrown on what is no doubt one of the most difficult, as it is one of the most interesting, chapters of our speciality.

THE
DIFFERENTIAL DIAGNOSIS OF TUBERCULOSIS, SYPHILIS,
AND MALIGNANT DISEASE OF THE LARYNX.¹

By W. JOBSON HORNE, M.D., B.C.CANTAB.,

Surgeon to the Metropolitan Ear, Nose, and Throat Hospital; formerly
Ernest Hart Scientific Research Scholar of the British
Medical Association.

SOME few years ago—it was on the occasion of the British Congress for the Prevention of Consumption—I had the pleasure of conducting some eminent laryngologists round the Pathological Museum which was formed in connection with the Congress. One of my visitors commented on the large amount of space which had been allotted to the larynx, and on the introduction of specimens illustrating diseases other than tuberculosis of that organ. Side by side with the specimens of laryngeal tuberculosis were placed, for

¹ Introduction to a discussion in the Section of Laryngology and Otology of the British Medical Association, Exeter, July, 1907, by kind permission of the Editors.

the purpose of teaching differential diagnosis, examples of syphilis, lupus, leprosy, carcinoma, and pachydermia of the larynx.

The explanation I offered for the introduction of these specimens was that the eye trained to recognise changes in the larynx caused by tuberculosis would make very few errors indeed in the diagnosis of laryngeal diseases. To this my visitor replied, "Quite true, my good fellow, but where are you going to meet with such a monster?" If the dictum is true, let us hope that we are all monsters, or if we are not, that we are gathered together to-day with a view of becoming monsters; for I purpose approaching the subject of our discussion from the standpoint of the exclusion of tuberculosis.

With a view of arriving at a solution of a problem such as the one before us, it is as well to have some practical method or scheme to work upon. The method of investigation should have a scientific basis, it should be workable, it should not subject the patient to experimental tests, either of an operative or therapeutic nature, if such tests would be detrimental to the patient's recovery. The scheme I shall submit is one of elimination.

When the practitioner, who is in regular attendance, offers an opinion upon an ambiguous disease of the larynx, I find that he is generally correct. He is thoroughly conversant with his patient's previous health and family history, and is in a position to exclude tuberculosis and syphilis as possible factors. The natural anxiety of a specialist is for fear that he overlooks malignant disease in its earlier stages. This anxiety is reflected in the fact—in my experience—that when an expert makes an error in diagnosis it is usually on the side of regarding an innocent growth as malignant, and not on that of overlooking malignant disease. It is a good error, but none the less an error in diagnosis. When I say "in my experience," perhaps I should amplify that by adding that it has fallen to my lot in the course of clinical work to spend some ten years of my life in the dead-house and the pathological workroom. In that time there have passed through my hands many specimens of tissue removed from the larynx in the belief that they would show malignant disease, and which have occasioned surprise when they have demonstrated tuberculosis. More than once I have known thyrotomy performed under a similar misapprehension, and I have known also the entire larynx removed in a case of tuberculosis mistaken for malignant disease. In this experience I am not alone. Let me assure you that this reference to error in diagnosis in the practice of others is made with all humility that is born of pathology; it admits

of only one interpretation, namely, gratitude, for, however learnedly we may talk here and elsewhere, it is quite evident that each one of us will have to bear his cross in silence before he can lay claim to experience.

The elimination of tuberculosis is, therefore, a point to be gained, and I would suggest that it is the most practical way of arriving at a positive diagnosis of cancer. The suggestion is not made to satisfy an idle fancy. It is dictated, as I have shown, by pathological as well as by clinical facts. There are difficulties at times in adopting this course I admit, but in the present day they are not so insurmountable, and to them I shall revert.

It is not my intention to describe and differentiate the clinical signs and symptoms met with in typical and uncomplicated cases of tuberculosis, of syphilis, or of cancer of the larynx. In doing so one would be recapitulating a great deal of what Sir Morell Mackenzie wrote, and to which there is very little to be added. Moreover, it is understood that our discussion is not concerned with typical cases—although the term “typical” in this matter must be a relative one. It is also understood that the discussion is limited to intrinsic disease of the larynx. Nor is it my intention to discuss the value of any one sign in the differential diagnosis of these diseases. It is more with general principles that I shall deal in arguing from the unknown to the known.

Speaking generally, there is very little to be gained by putting the patient through a lengthy inquiry into the history of his case or an account of his symptoms. These can be supplied by the patient's medical attendant. It is better for the larynx to have remained at rest as long as possible before the examination is made, and, needless to add, it is also better that that examination should be made unprejudiced by any previous expression of opinion.

Before proceeding to the objective aspect of the matter there are, however, four subjective factors which may be usefully considered. The four questions which I would previously ask are the following :

- (1) Pain : Is it constant or intermittent ?
- (2) Vocal function : Has it been impaired previously, and, if so, after what interval of immunity was there recurrence ?
- (3) Is there any evidence of fibrotic degeneration ? What is the condition of the urine ?
- (4) Has the larynx recently undergone any local treatment ?

Pain is experienced, relatively, much earlier and more continuously in malignant disease. At first it is localised to the

larynx, and afterwards it radiates to the ears. Whereas, in tuberculosis, and still more so in syphilis, there is often a noteworthy absence of pain when the larynx is at rest.

Hoarseness or impairment of the vocal function for a long period is not against the disease being malignant; but a recurrence of impairment of the vocal function after an immunity for an interval—it may be some years—is consistent with a recrudescence of tuberculosis in the larynx, when, perhaps, the disease has become arrested in the lungs. Further, the character of the voice is helpful. There is this marked difference between the hoarseness occasioned by tuberculosis and that by syphilis or malignant disease. In the former the voice is weak, perhaps a mere whisper, due, as I have shown, to a myositis of the intrinsic muscles, whereas, in cancer and syphilis, the voice is strong though hoarse. Impairment of the vocal function may be characterised as asthenic in tuberculosis and sthenic in the other two diseases. Fibrotic degeneration in other organs points to syphilis or malignant disease, or pachydermia, rather than to tuberculosis, for it may be truly said that a person smitten with tubercle should pray to become gouty, using the word in its comprehensive and non-committal sense. As regards an inquiry into previous local treatment, it is not amiss to make quite sure the larynx has not been spoilt for an independent opinion by some previous application of drugs or cautery, or by an attempt to remove a portion of the affected part for an examination.

I now pass to the objective part of the matter, that is, to the laryngoscopic examination itself, and I propose to place the cases in four groups, it being understood that each case is ambiguous and that we are arguing from the unknown to the known.

My four groups are as follows :

(1) Those cases in which there is only congestion of the laryngeal mucosa, and perhaps impaired mobility of a vocal cord. The congestion may be patchy and limited to only one part, or it may be diffuse and involving both sides. The paresis may be bilateral.

(2) Those cases in which there is (perhaps in addition to congestion and impaired mobility) some tumefaction, if not a definite tumour or excrescence.

(3) Those cases in which, in addition to congestion, impaired mobility and tumefaction, there is ulceration.

(4) And lastly, those in which there is external evidence of disease, such as glandular enlargement.

As the discussion before us is intended to be essentially a

clinical one, I do not propose to divert it into pathological channels, but a little pathology is very helpful at times as an aid to clinical diagnosis. In quite the earlier stages of tuberculosis and malignant disease there are fundamental changes in the larynx, such as congestion, tumefaction, and paresis, mentioned in Groups 1 and 2, which, whilst appearing to overlap, in reality do not join issue. To differentiate these changes a minute knowledge of the histology of the larynx is essential, and more particularly of the distribution of the two varieties of epithelium, the columnar, and the tesselated, lining the larynx. A knowledge of the sites of transitional epithelium is also essential to the elucidation of the biological processes we have to consider. I will not weary you with a detailed account of the part played by the epithelium in the larynx in health and disease. Suffice it for me to remind you that this epithelium presents striking contrasts at different stages of life. In the foetus its distribution is very different from that in the infant, in the infant from that in adult life, and again, with advancing years there are further changes in the relative proportion of the columnar to the tessellated variety. Then, again, comparing age with age, there is a difference in the two sexes, and in this we have a clue to the relative frequency of intrinsic disease in the male compared with the female subject. In the male the epithelium seems to have a greater proclivity to undergo a metaplasia under the provocation of irritants and disease, with the result that there is a greater tendency to the formation of squamous-celled neoplasms.

At the Edinburgh meeting of the Association in 1898 I demonstrated that the part of the laryngeal mucosa, which is richest in glandular structure is most vulnerable to tuberculous infection. I have also shown that that part is covered with columnar epithelium, whereas the part which is clad with squamous epithelium is relatively free from glands and immune against tuberculous infection, becoming involved in a tuberculous process only by continuity, and at a later stage of the disease. On the other hand, it is commonly accepted that epithelioma is by far the most common form of intrinsic malignant disease of the larynx. It is also commonly agreed that the ventricular bands and the vocal cords are the more frequent sites of origin of epithelioma. Personally, I would restrict this statement to those parts of the ventricular bands and of the vocal cords which are covered with squamous epithelium, and would add to the statement the sites of transitional epithelium. All these parts can be well defined. For

although the diameters of the larynx in any direction are less than an inch, for practical purposes the different areas to which I have referred are a mile apart.

It therefore follows from what has been said that it is of the utmost importance that as an aid to differential diagnosis between tuberculosis and malignant disease, in the earlier stages which we are now considering, to localise the site of origin. Should the congestion be so diffuse as to involve the entire side of the larynx or both sides, then steps can be taken to reduce it by the application of cocaine and adrenalin by means of a drop syringe in preference to a spray. Dr. StClair Thomson has already called attention to this aid in the diagnosis of lupus of the nose. Having localised the site of origin in this way, we have grounds for stating whether the disease is tuberculous or malignant. The exceptions to this statement, such as the development of adenoid cancer in the regions vulnerable to tuberculosis, do not invalidate the general application of the principles I have stated.

Passing now to another point in an early differential diagnosis. All three diseases have this in common, they consist essentially—but in varying degrees—of a cell proliferation and infiltration, which gradually burrows extensively and deeply into the surrounding parts, with the result that the intrinsic muscles sooner or later become affected, and impaired mobility of one or both cords results. It therefore follows that this impaired mobility is not peculiar to malignant disease. In tuberculosis, however, the paresis is less marked and less persistent than it is in cancer, inasmuch as it is occasioned by a myositis secondary to a bacterial invasion rather than to a cell proliferation, as in cancer. All the same, I have seen laryngeal tuberculosis ushered in by double abductor paralysis. In pachydermia laryngis simplex impaired mobility of the cord may occur. In expressing this opinion I find myself at variance with my co-referee.¹ I have not only observed clinically a fixation of the cord in pachydermia simplex, but I have also microscoped specimens of this pathological condition, in which the damage done by the deposition of fibrous tissue in interrupting the continuity of the intrinsic muscle-fibres would fully account for the clinical phenomenon. It would, therefore, seem that impaired mobility of a vocal cord is of value as evidence of malignancy in those cases in which the disease presents a well-

¹ Sir Felix Semon, "Malignant Disease of the Larynx," *Encyclopædia Medica*, vol. vi, p. 386: "Pachydermia, in my experience, never causes, however much the tumefaction may be developed, impairment of the mobility."

defined tumour or excrescence, other than pachydermia, which may be mistaken for a benign neoplasm. It is also evidence of the extent of the growth beneath the epithelium. The sign is also of service in cases in which the origin of the growth is so deep-seated that fixation of the cord is the only clinical feature observable in the larynx above the level of the glottis.

Passing on to Group 2—namely, those cases in which there is a tumefaction, if not a definite tumour or excrescence—it will be inferred from what I have already said that its situation will assist in excluding or admitting tuberculosis into the diagnosis, unless the tumour happens to be situated at a site of transitional epithelium such as the vocal process. This brings me to a brief consideration of pachydermia laryngis. Some few years ago, at the Portsmouth Meeting of the Association in 1899, and in a paper privately published as a thesis in the University of Cambridge, I brought forward evidence to show that pachydermia laryngis should be regarded more as evidence of disease than as a disease in itself. I showed that a pachydermatous condition may be brought about by syphilis, or tubercle, or malignant disease, and that even the variety which might claim to be called simplex was not uncommonly associated with fibrotic disease in other organs. The three diseases we are considering, acting as irritants, may all induce a hyperplasia followed by a metaplasia of the superjacent epithelium, with the formation of the clinical appearances of pachydermia. It therefore follows that a diagnosis of pachydermia is not sufficient in itself. One must be prepared to exclude the causation of the pachydermia. In illustration of this point I may perhaps be allowed to refer to the case of the late Emperor of Germany. Some of you may remember that Virchow gave it as his opinion, from an examination of the part removed, that the disease might be of the nature of a pachydermia laryngis. No mention was made of any cause for the pachydermia. At that time the condition had only recently been described by my old teacher, and it is evident from reading his report that the condition was not then regarded as a manifestation of the underlying disease.

This brings me to a consideration of the advisability and of the manner of removing a portion of the suspected growth for microscopic examination. It is now generally agreed, I think, that unless the patient is prepared to submit to an operation for the removal of the disease in the event of the microscopic examination being positive, it is as well to advise the patient not to undergo

this little exploratory operation. In the event of the removal of a portion of the growth for examination being decided upon, it is as well for it to be understood that a negative report from the microscopist counts for nothing. It certainly should not be made use of for shifting the responsibility of a negative diagnosis from the clinician on to the pathologist. For the pathologist can go no further than report upon the tissue submitted to him. It is therefore incumbent upon the clinician to remove a portion in such a manner as to reach the deeper part of the growth. It is unnecessary to add that this is more easily carried out in those cases in which there is a distinct excrescence than when there is only a diffuse tumefaction. Failure is in no small measure to be attributed to the forceps used. Those cutting from before backwards, or laterally in the same line as the shaft of the instrument, are best avoided, for they cannot be insinuated so as to reach the deeper part so well as those of the punch-cutting variety, in which the knife is set at an angle to the shaft of the instrument. The piece of tissue removed should be placed in sterilised water or saline solution, in order that an animal experiment may be conducted with a fragment, with a view to finally excluding tuberculosis. The remaining portion could then be prepared for microscopical examination, and if the operator has not cut deeply enough to reach diseased tissue or to permit of a useful opinion being formed, this should be clearly stated in the pathological report.

I now pass to a consideration of the third group of cases, in which the tumefaction has broken down, and there is ulceration. I will not dwell upon the relative significance of pain, foetor, the nature of the ulcer, or the character of the discharge. At this stage we are considerably assisted in excluding tuberculosis by the pathological fact to which I have drawn attention elsewhere, that when tuberculous disease in the larynx presents ulceration that in the lungs has already reached cavitation. True it is that the pulmonary disease may become arrested, or may be so deep-seated as to escape the vigilance of a most careful auscultation. But in such a case a Röntgenograph would probably disclose any old disease in the lung if the temperature chart, the repeated examination of the sputum, and animal inoculation with the same have failed to do so.

At times it is not amiss to go below the belt in seeking the diagnosis of ambiguous ulceration of the larynx. Some few years ago there came under my notice a case of laryngeal ulceration which was suggestive of malignancy. There was extensive tume-

faction with sloughy ulceration of one side, and there was also marked cachexia. The man was brought into the hospital. A study of the temperature chart led to an examination of the spleen, and this in turn to a bacteriologic culture of the blood, with a positive result. At the autopsy a diagnosis of infective endocarditis was confirmed. The primary seat of infection was undoubtedly the larynx. The features in the case were that little or no pain was complained of by the patient, that the alteration of voice was very slight in proportion to the extent of the laryngeal disease, and that there was an absence of glandular enlargement.

Passing now to the fourth or last group, that in which there is external evidence of laryngeal disease such as glandular enlargement. This might appear to be in itself presumptive of the disease in the larynx being of a malignant nature. It does not, however, exclude the possibility of it being tuberculous, for I have found that when the disease has become arrested in the lung, but from any cause has been lighted up again in the larynx, then there is the danger of the cervical lymphatic glands becoming infected, and more particularly so if such a larynx has been subjected to any active local treatment.

Before eliminating tubercle in a differential diagnosis, one should mention that cases have been recorded in which tuberculosis and malignant disease have occurred in the same larynx. I can accept the statement, for I have observed it both in the larynx and in the lungs. One case in the course of ten years and out of many hundreds of *post-mortem* examinations I think might almost be regarded as a negligible quantity, but in the cases that we are considering it is as well to bear in mind that it is the unexpected which is sure to happen.

From the foregoing it may be assumed that tubercle has been eliminated from the diagnosis, so that the problem now resolves itself into a diagnosis between syphilis and malignant disease. Having excluded tuberculosis, large doses of iodide of potassium may now be pushed without the possibility of doing the patient harm, and, assuming that the condition clears up—as it generally does if it is purely syphilitic—the diagnosis may be allowed to rest with that of syphilis, more particularly if there is a strong history in support of it; but, needless to add, such a history would not exclude the possibility of syphilis being only a factor in the case and not the important part of the disease. The scar tissue formed in the process of healing of syphilis of the larynx presents features of a plastic nature not met with in tubercle and malignant disease.

In connection with cancer of the larynx I would mention briefly transillumination as an aid in the differential diagnosis. It is a matter of common knowledge that with an ordinary laryngoscopic examination it is not easy to investigate at all thoroughly the parts of the larynx below the level of the vocal cords. It is also known that in tuberculosis and syphilis of the larynx the parts above the cord are those mainly affected, whereas in malignant disease there may be deep infiltration, burrowing, and forming a definite tumefaction on one or both sides of the subglottic region. In such cases I have found of service a double lamp, such as that which is used for the transillumination of the frontal sinus. By placing it on either side of the thyroid cartilage one is enabled to obtain a better view of the subglottic region in a mirror placed in the mouth in the usual way, the investigation, of course, being conducted in a dark room. In this way one is able to form a better opinion, not only of the presence or absence of any disease in this region, but also, when present, of its extent.

Finally, I come to a brief mention of the value of the opsonic index in the diagnosis of malignant disease of the larynx. So far as I can gather, I fear it will not be of much service to us when that service would be most helpful.

The reference which I have made in the brief fifteen minutes at my disposal to certain scientific principles which may be of service in arriving at a solution of the problem before us, must not be misconstrued to mean that in them we shall find a solution of all our difficulties. Whilst I would be one of the first to admit that clinical experience, *per se*, brings with it a certain something that nothing else can bring, at the same time one has to bear in mind that clinical experience cannot be measured or weighed like scientific data. Moreover, one's own clinical experience is so often fallacious, and teaching based upon the experience of one person, unsupported by scientific facts, is, after all, empiricism. All that I have attempted to do is to briefly indicate how a diagnosis may be arrived at on some lines of scientific deduction, so that should the opinion expressed be proved to be an erroneous one, we have at least the consolation of knowing that it cannot be characterised as sheer guess-work. The great lesson that is borne in upon one by attempting to discuss a matter of this sort is the all-importance of a laryngoscopic examination and of that examination being made at the earliest possible opportunity. We are dealing with the three most dreaded diseases of the larynx; all three are amenable to arrest, if not to cure. The differential diagnosis of these three

diseases might well be a chapter in itself in any text-book ; their respective treatment is diametrically opposed to one another, and accuracy in diagnosis is half the cure. All three are so insidious in their onset that they would seem to have no beginning, and yet so progressive in their character that an early examination is the only hope of saving the larynx from becoming a most veritable citadel of misery.

DISCUSSION.

THE PRESIDENT OF THE SECTION invited discussion on what he described as two useful papers on a subject in which he took a great personal interest, and which he was sure was of great interest to all present.

Dr. HARING said : I came here absolutely in the position of a learner wishing to know whether more light could be shed on these difficult questions. At present we have to look for the cause of the complaint from top to toe of the patient and then we have to strike a sort of average. Sometimes we are right, sometimes we are wrong. The points that are of vital importance, especially with regard to malignant disease, are, to be able to diagnose the malignancy at the time when there is a real usefulness in operating, the most important being early fixation of the cord, particularly if the fixation is greater than would be justified by the amount of inflammation, or growth, or infiltration that could be noticed. Fixation of the cord, with little congestion or infiltration or a very considerable limitation of movement, would be an indication in favour of malignancy, having first excluded lesion of the recurrent laryngeal nerve. The danger of missing a malignant growth is very much greater than the danger of removing occasionally a portion of the larynx by mistake. If you can be sure that you are removing some of the neoplasm it might be useful, but in early cases you really are in great doubt, if you do take a fragment, whether you are not removing an adjacent portion of congested normal tissue. I have often thought that in secondary syphilis the anterior portions of the cord congested much more than they did either in tubercle or in simple catarrh. So that where the anterior half of the larynx is definitely congested it would be a strong indication of secondary syphilis to me if I had no other evidence. A condition following enteric fever occurred, in which if there had not been a history of enteric fever I do not think it would have been possible to diagnose what the lesion was. There was fixation of one cord, a large amount of tumefaction, intense congestion, loss of voice, considerable dysphagia and a certain amount of difficulty in breathing. Without the history one would have been on the outlook for malignant disease or tuberculous perichondritis. Tuberculosis of the larynx commencing rather deep down is often a source of great difficulty. In younger cases I have very frequently seen them taken for hysteria. We have had lately two or three cases where hysteria has been diagnosed by even good men after examining the larynx, but when the ulcer extended slightly backwards the condition was made clear.

Dr. HERBERT TILLEY said : When I knew that Sir Felix Semon was to open this subject it seemed useless to attempt to do anything more than to support him. All that one can do is to submit one's own experiences. I have a case of a man, aged fifty-two, apparently in perfect health, complaining of hoarseness without pain. On laryngeal examination a tumour

was seen. The *tout ensemble* of the examination showed that it was obviously a case of malignant disease. The chest was examined but no evidence of tubercle was found. After a consultation another surgeon considered it to be a case of malignant disease. When the larynx was opened the tumour was found to be soft and unlike an epithelioma. A section was made and the growth was found non-malignant, but turned out to be tubercle. This case showed the difficulty of laryngeal tumefaction occurring in an adult who does not at the time present any general disease, and in which the history of syphilis may be reasonably excluded, and where every symptom and sign of the patient pointed to the diagnosis of malignant disease. Dr. Haring has touched on the question of the immobility of the cord. Fixation of the cord is not absolutely essential to malignant disease. We saw a case some months ago in which the cord was absolutely movable. Semon came to the conclusion that it was malignant disease and it turned out to be so afterwards. Referring to Dr. Horne's paper, he had every respect for expert opinions, but he did not think it was yet possible to limit the early growth of a tumour to certain regions according to the kind of epithelium found there. He should hardly have thought that practical experience would bear that out.

Dr. DUNDAS GRANT said there could be no more practical subject introduced nor two more competent authorities to introduce it than those who had done so today. All who listened to them would feel that they had been amply rewarded. They must feel relieved to learn that their difficulties had been shared by an authority of so great experience as Sir Felix Semon. Dr. Grant wished they could go away from the meeting feeling that they had more absolute data for diagnosing these various conditions. A unilateral congestion was suggestive of tuberculosis in the very early stages, but if the condition was unilateral at a late stage it was equally probably not tuberculous. A great deal had to be learned by familiarity with the examination of these parts. Sometimes by looking at the cord one could say that it was tuberculous, though unable to say exactly why. He had seen cases in which tuberculosis showed itself by a sort of roughness along with the redness of the vocal cord, distinguishable from the beefy redness of simple inflammation of the cords. Sometimes in later stages there is pallor of the cord accompanied by a cushiony look due to a slight oedema. Dr. Horne brought it out more distinctly on a former occasion than he had done this morning. The redness of secondary syphilis was not distinguishable from the congestion of any other cause unless the mucous patches could be seen. There is an acute laryngitis which is described and pictured with white patches, and which he had only seen once, in the case of a young boy. It cleared away, but if it had occurred in a subject likely to have secondary syphilis it would have caused great difficulty. In one case he saw what appeared to be a condyloma on the vocal cord in the case of a man who had had syphilis, but it had disappeared again in about ten days. This seemed to be a herpetic condition similar to that described by Mr. Jonathan Hutchison as occurring on the prepuce of persons who have suffered from syphilis. In regard to the tumour form of tuberculosis he had observed it in an elderly man who had a growth beneath the anterior commissure. This looked innocent, like a fibroma, but when removed it was found to be tuberculous. It was shown at the Laryngological Society. The general infiltration of tertiary syphilis is well described in Heymann's handbook. It looks like a thorough-going tuberculous infiltration of the epiglottic and the aryepiglottic folds, only a little "quieter," if one may

put it in that way. He brought a case before the Laryngological Society of London, and the question of its being a syphilitic infiltration did not seem to strike him or the other members, but shortly afterwards a typical ulcer appeared on the posterior pillar of the fauces, and it entirely disappeared under iodide of potassium and mercury. Dr. Horne had hit upon an excellent mode of thought which helped to clear the ground. He said that it was a most common error for tuberculosis to be diagnosed as malignant disease. There was also the possibility of erring in the other direction, and those who see a great deal of tuberculosis are very apt to diagnose it when the disease is something else. Its elimination is of the greatest importance, and to do this it is essential to consider both the general and the laryngoscopical appearances. The great thing was, as he had said, to accustom oneself to the look of the part, and for this there should be a good light and good eyesight. The opsonic index was also of help in excluding tuberculosis. In the matter of removing a portion of the swelling for examination under the microscope Dr. Horne had laid great stress on that and on the mode of doing it. Dr. Grant lately had a case of infiltration which he regarded as tuberculous, but the chest and sputum were negative. He removed a part with the punch forceps for examination, but no tubercle was found. While he was examining the throat the patient coughed, and the sputum was then found to contain tubercle bacilli. One has to guard oneself against error when negative results are obtained from the examination of the sputum or of the tissue removed, as the sputum given may be mainly salivary secretion, and the tissue removed may not involve the disease. The punch forceps, cutting upwards and downwards, is the most efficient instrument. Jurasz's forceps takes sometimes hold of a bigger mass than it can exactly bite off. On one occasion he removed a piece of the vocal cord with his forceps with the result that too much was taken away. This showed complete absence of epithelioma, and the patient is now in the enjoyment of everything except a good voice. In another instance, however, the appearance of the larynx suggested tuberculosis, but the portion removed by means of Jurasz's forceps was found to be epitheliomatous.

Dr. WILLIAM HILL said: I think we must admit that Dr. Jobson Horne's paper was one of great lucidity. I venture to think that the process of eliminating tuberculosis is what we have all done more or less in a vague way up to the present. But the dictum of pathological examination has not previously been stated with such clearness as Dr. Horne has done to-day. His thesis has been worked up around the exclusion of tuberculosis, and I believe that it is the method to adopt. The methods put forward today were suggested to me in a case in which there was great difficulty in excluding tuberculosis, but I understand, however, that these experiments mean loss of time. That is important. The method of diagnosing by iodite of potassium has struck me as unsatisfactory. It does not tell us whether the affection is a mixed one or not. There is, in many cases, an analogy between the symptoms of ordinary carcinoma and inflammatory changes. On that account there is a good deal of delay and must have caused embarrassment to many of us. I have seen the onset of iodism bring the patient to a dangerous state. In using iodide of potassium for diagnostic purposes I always give mercurial inunctions as well. My experience has been too small to enable me to say with certainty as to whether the method was right or wrong. By the iodide of potassium method alone a good deal of valuable time was lost, and I advise the employment of mercurial inunctions.

Dr. SCANES SPICER said: Dr. Horne's paper marks a great advance in

solving the problem of diagnosis. I cannot agree with Dr. Hill that we have all along unconsciously eliminated tuberculosis. I think it has been a sort of haphazard result. Dr Horne has put before us what must be the method of the future—the exclusion of tuberculosis. I think we must in the future be able to get much quicker at the diagnosis of these doubtful cases, and I think Dr. Horne has given a very important hint about the site of origin of the growth. This, in the case of malignant disease, has been classified into intrinsic and extrinsic. I have an idea that the notions in connection with the relative proportions of the cases so described are incomplete. From a large experience I have seen the extrinsic form in scores of cases, and I have not seen the intrinsic in units, *i.e.* cases where the larynx is primarily invaded by cancer. I think there is some confusion in the use of the words "extrinsic" and "intrinsic." I see Sir Felix shakes his head. I have found statements in accredited monographs implying that the disease might be intrinsic originally, but that it may extend outside the larynx and become extrinsic. Semon's statistics are the largest of any individual observer and are the most valuable, but his name has been so widely associated with this disease that even we specialists have sent him our cases, and the probability is, that he has got nearly all the cases that exist—a regular stage army of cases—and that must affect his statistics on this point. I think Dr. Horne's point about the site of origin and the character of epithelium is likely to throw a very considerable light on this point. With reference to the opsonic index I do not think in its present state that it is of great value in diagnosing between tuberculosis and malignant disease of the larynx. In tubercle of the larynx it seems to have no influence whatever in a therapeutic sense, and even as a diagnostic it does not seem to be dependable, it does not help us a bit. When I am sure it seems to tell me I am right, when I am doubtful it does not assist me.

Dr. BIRKETT (President of the American Laryngological Society): It is only two weeks ago since I received a programme of this meeting, and saw upon it the most interesting title of this discussion to be opened by Sir Felix Semon, which caused me to pack my traps and leave at a few days' notice. I have listened with a great deal of interest and profit to the discussion of this subject by one of so ripe experience and practically *ex cathedra* as Sir Felix Semon is. I have been anxious to hear the experience of my British colleagues of tuberculin as a means of diagnosis. It has proved to us of the greatest possible value. Its use is undoubtedly known to you all, and I had only wished for an expression of opinion from those whose experience entitled them to say what results had been obtained from its use. It had been satisfactory with us in cases of hyperæmia of one or both vocal cords, where physical signs had not shown themselves present in the chest. With the use of tuberculin physical signs have shown themselves, and tubercle bacilli have appeared in the sputum.

Dr. SYME: One or two points occurred to me before. I should like to get some elucidation of the hyperæmia of the vocal cords that one gets in secondary syphilis and in early tuberculous disease of the larynx. In tubercular disease the hyperæmia affects the edge of the cords rather than the superior commissure. In secondary syphilis it is a more general hyperæmia of the cords—a stained appearance with a deep purple rather than a pinkish tint. Such a condition I saw a few weeks ago, where we made a tentative diagnosis of tubercular disease. In that there was decided hyperæmia of the edge between the cord, and, as Dr. Grant said

he had seen in other cases a roughening of the edge of the cord, this roughness appeared just like a stab inoculation of the cord at certain points by the tubercle bacillus. The latter course of the case proved that there, at any rate, was disease of the lungs, and that consequently the disease of the larynx was tubercular also. The paralysis Dr. Horne speaks of occurs at shorter intervals than he suggests. If one gets recurrent loss of function of the larynx, especially the tiredness of the voice—*i. e.* the loss of voice coming on after a short use—other things being equal, one would put that down as strongly suggestive of tubercular disease of the larynx. A medical man consulted me recently about hoarseness. He had come from a sanatorium, said to be cured. He was seen by a very well-known laryngologist in Scotland, who told him he had nothing the matter with the larynx. I saw him later, and he had a thickening of the anterior part of the anterior ventricular band, about the size of a split-pea, which quite hid the anterior part of the vocal cord. The man was about fifty years of age, and the question was malignant disease or tubercular disease? The condition has remained as it was. I suppose that it is possible that a tubercular tumour acts in the same way in the larynx as it undoubtedly does in the lung—fibrous changes take place, and the tumour is cured, or it remains stationary at about the same size. Is it possible that a tumour would maintain its original size for years after if it were malignant?

Dr. BRONNER said: Inunctions are more reliable than iodide of potassium. I have seen three cases of fibroma of the larynx in old men. It seems to affect the whole of one vocal cord, especially at the lower part. I have had one case for some years; it is not malignant disease. I would ask Sir Felix Semon whether it is tertiary syphilis characterised by papilloma, especially of the vocal cord, with intense redness. As regards tuberculin, I used it once some years ago before the opsonic index method came to be employed and the patient got oedema of the larynx and tracheotomy had to be done. That was held to be a proof that the condition was tubercular, but I have not had recourse to the method since.

Dr. BALL said: In reference to the iodide of potassium, it has often happened to me, and to others, to exclude syphilis in the course of a week or ten days by using iodide of potassium without any mercurial inunctions. There is a class of case where the method would be to exclude syphilis by iodide of potassium, another class where the diagnosis can be made by the removal of a small portion of tissue, and another class where special methods can be adopted to make special diagnosis.

Dr. WATSON WILLIAMS said from Sir Felix Semon we gather that the class of cases under discussion are those in which we cannot exclude syphilis. There are a great many cases where we can exclude these things. Neither the history nor the differential factors, as far as appearances are concerned, make for one or other of these so-called border-line cases which cause us so much anxiety. If it is malignant operative measures can be taken, but if we cannot recommend treatment we may hesitate too long in coming to a definite diagnosis so that we may spare the patient the pain of suggesting cancer. He would ask Sir Felix Semon if he attributed less value now than he did formerly to the movements of the cord, which are out of all proportion to the apparent degree of infiltration. In malignant disease the cord will not be so markedly diminished in so short a period. If there is a tumefaction, and we are in doubt as to whether it is malignant or not, and other factors have not enabled us to come to a diagnosis, surely we should not hesitate to remove a fragment freely so as to give the pathologist a chance of giving an opinion.

A deep fragment might give the investigator an opportunity of clearing up the nature of the case.

Dr. MCKENZIE JOHNSTON (President of the Section) said: I would ask you to remember that this discussion will be read by the profession far and wide. I think the discussion will be of service, and impress upon them the importance of diagnosing, or of getting a diagnosis made as early as possible. We know that there is no royal road to making a diagnosis between these conditions—I would that it were so. It would so greatly facilitate our work if it could be done. The conditions are so changing, the appearances so varied, not stereotyped, but overlapping each other in one condition and another, that definite diagnosis is supremely difficult. It is necessary that we should state to the profession clearly and decidedly that they must not expect a diagnosis to be made merely by putting a laryngeal mirror into the patient's throat and allowing them to get a view. This is one of the great difficulties we have to face in consultation. We are expected to make a diagnosis from a laryngoscopic view. The practitioner expects the expert to come to a definite conclusion without giving all the points necessary to assist in making a diagnosis. They should understand that the conditions necessitate careful consideration of every possible factor.

Sir FELIX SEMOX, in his reply, thanked the audience for the many kind words they had said about his paper, and wished to associate himself with the first part of the remarks that had just fallen from the President, in hoping that the discussion would make it clear to the profession how great the diagnostic difficulties were which had to be encountered in these three diseases. At present they were very much where they started. He would be delighted if the various diagnostic helps suggested by Dr. Horne should prove of practical value, but he doubted it at the present time. All his extremely interesting pathological data as to the various forms of epithelium met with in the larynx assisting one in the localisation of growth from the form of epithelium met with in the larynx did not quite tally with his own practical experience. He had seen malignant disease start at any part of the larynx, tuberculosis at any part, and syphilis at any part, and he should not take upon himself to say that because it started at one particular place a growth was malignant, tubercular, or syphilitic. Of course, if a papillomatous growth were seen in the *posterior* part of the larynx they were much more inclined to look upon it as malignant, but when it became a question of differential diagnosis between tuberculous, syphilitic, and malignant disease it was a different thing. Having had an unusually large experience, he would not take upon himself to say which was which from the situation alone. Needless to say, he quite agreed with Dr. Horne that one should first try and eliminate tuberculosis, but he thought that this had always been done. He had been the first, he thought, to draw attention to the very great importance of fixation of a vocal cord when a suspicious growth was seen in the larynx, but he had never spoken of the differential importance of that sign in malignant disease, syphilis, or tuberculosis. Anybody who took the trouble to read what he wrote on the subject would find that he expressly stated that it was of value as a differential point between innocent and malignant growths, but of no use in malignant disease, syphilis, and tuberculosis, because in these diseases the articulation of the arytenoid does become affected in the whole three, and therefore fixation could only be used as a diagnostic between malignant and innocent laryngeal tumours. Dr. Watson Williams had asked if he still attributed as much value as he did formerly to the

movement of the cord as a differential diagnostic sign. He answered the question most definitely in the affirmative. Here he would say that during this discussion more than once the giant shadow of his great teacher Virchow had arisen before him, who often used to complain that people criticised his writings who had not read them. Time after time he (the speaker) had endeavoured to explain that the *absence* of the sign in no way precluded the idea, that the growth nevertheless may be malignant. In those forms of cancer in which there is no deep infiltration at first, there may be free mobility. If, on the other hand, there is early impairment of mobility, this indicates malignant disease. The removal of a small fragment for microscopic purposes is important. Even in a minute piece of growth, not bigger than a pin's head, definite evidence of squamous-celled carcinoma may be found. Mr. Shattock once in such a case expressed his astonishment that in so early disease the condition was so apparent. He had on one occasion performed an operation for what seemed to be plainly malignant disease, but when the larynx was examined afterwards it was found to be an infective inflammation that had to be dealt with. Whenever possible a piece should be removed for examination. This, however, should never be done unless the patient has expressed his readiness to undergo a radical operation in the event of the trouble being found to be malignant. That is a good practical rule. He would add: Do not apply strong acids, but leave the thing alone for a little while, so as not to deprive yourself of the means of making a reliable diagnosis. The President had said that if this discussion was to be of real use to the members of the profession it should impress upon them the importance of getting a diagnosis made as early as possible, and that is true. We must not be too didactic in these cases. The more experience they got the more reason they found for caution. With regard to the question of mercurial inunctions he had not the remotest opposition to offer to that method so long as they came to a conclusion as early as possible. In medicine they very rarely had to choose between abstract good and abstract bad, but between a major and a minor evil. He had heard a pessimist described as a man who out of two evils selected both. There was no reason why they should not use the inunctions as well as the iodide of potassium. He confessed that his early experience with Koch's tuberculin had made him rather frightened to use the method, and he had not resumed its use for differential diagnosis, but he would keep the point in view. Dr. Seanes Spicer had charged them with great confusion in the use of the terms "extrinsic" and "intrinsic." He found on the very first page of his address to the Medical Society early this year he had said: "If we divide all cases of cancer of the larynx into two large groups—extrinsic, which comprise those cases in which the disease starts from the epiglottis, the ary-epiglottic folds or the oesophageal aspect of the larynx, and the intrinsic, amongst which are included the cancers originating in the laryngeal cavity proper"—that seemed to be extremely simple, and the two expressions had never been used in any other sense than that. With regard to the enormous preponderance of intrinsic over the extrinsic cases, one sees more of the intrinsic cases in private practice. Hoarseness alone does not take the working man to the hospital. When he comes to the hospital it is at a time when the cancer has passed from the confines of the larynx proper and has involved the lymphatic glands, and produced dysphagia and other marked symptoms. In such a case he would say that was an intrinsic carcinoma which had become gradually a mixed one. Referring to the question as to how long malignant tumour

of the larynx may remain stationary, the longest period of apparent quiescence he had seen was one and a half years.

Dr. JOBSON HORNE thanked the members of the Section for the attention they had given to the several points dealt with in his introductory paper, and said that, in view of the amount of time that had been taken up by the discussion, and also in view of the number of papers before them, he had been asked by the President to be brief in his reply. It would, therefore, be difficult for him to deal at all fully and individually with all the points raised in the debate. Speaking quite generally with reference to the remarks—for they did not amount to criticism—that had been made anent the practical value of a minute knowledge of the histology of the larynx, he sincerely trusted that in those remarks there would not be found an excuse to deter others from making similar investigations, for he could strongly recommend the part played by the epithelium of the larynx in health and disease as a field for the most valuable research.

DIRECT LARYNGOSCOPY, WITH ILLUSTRATIVE CASES.

By ANDREW WYLIE, M.D., C.M.,

Assistant Surgeon Central London Hospital for Diseases of the Throat, Nose, and Ear.

THE method of investigating disease by direct inspection of cavities and enclosed chambers has received recently considerable attention from specialists devoting themselves to diseases of the larynx and the bronchial tubes. A new era was opened to laryngologists, and great advances made in the study of the physiology and pathology of the larynx when Garcia invented the laryngoscope. A still further addition to the armamentaria of the laryngeal surgeon has been made by Professor Gustav Killian, of Freiburg, in Breisgau, in South Germany, to whom laryngo-tracheal surgery has been lately so greatly indebted for progress.

Direct laryngoscopy by Killian's tubes implies that the larynx can be directly inspected, without the light being reflected by mirrors. When laryngologists have become more accustomed to the manipulation of these tubes, the method will be more extensively employed in cases where examination by the mirror leaves the diagnosis doubtful. It is certain also that this method will be adopted wherever operative measures can be more successfully undertaken through the tubes. By their use and skilful manipulation there need be no danger of injuring the delicate structures of the larynx, or the epiglottis, and direct laryngoscopy will undoubtedly form in the future a routine practice among specialists.

There are many difficulties to overcome in applying these tubes. Severe spasm and coughing frequently interfere with their introduction. The profuse secretion of saliva which nearly always occurs often hinders the surgeon from obtaining as good a view of the interior of the larynx as he otherwise would do. Deformities of the throat from tuberculosis, rheumatism or congenital deformities affecting the neck and hindering the backward movements of the neck during the insertion of the tubes form other difficulties which the manipulator has to encounter. It is also a matter for useful precaution when attempting to remove a foreign body or a growth through these tubes to have in readiness the proper instruments for the performance of tracheotomy, as severe dyspnoea may supervene.

To perform the direct inspection through these tubes with comfort to the patient and to the surgeon, it is advisable to place the patient under chloroform anaesthesia. This anaesthetic should be pushed so that there shall be no spasm of the masseter muscles, and no necessity for the employment of a gag to keep the mouth open. Further, it is advisable to swab the larynx and epiglottis with a 10 per cent. solution of cocaine, a procedure which tends to counteract and to overcome reflex action. The patient should be placed on the operating table with the head thrown well back over its edge, and at a situation lower than the rest of the body. Having smeared the tube with vaseline, it is firmly gripped by the surgeon and forms a powerful spatula or tongue depressor, causing the epiglottis and the hyoid bone to come forward. During an inspiration, the tube can be gently inserted past the epiglottis into the glottis. It must not be pushed too far, lest it should carry the foreign body for which search is being made further into the trachea. In case of laryngeal or other disease about these passages, the tube may cause some haemorrhage, and thus prevent the field of view from being properly inspected. With a direct electric forehead lamp, such as the Leiter lamp, or Kirstein's, which throws the light directly on the part to be examined, or with an electric extension lamp, the larynx is thoroughly well seen through the tube, and foreign bodies and growths are easily recognised and removed.

Killian describes the removal of 164 foreign bodies from the larynx and bronchi by direct laryngoscopy and bronchoscopy. This collection includes such bodies as buttons, seeds, beans, fish-bones, artificial dentures, pieces of bone, pebbles, whistles, safety-pins, coins, and a variety of other objects. Perhaps the greatest use of

direct inspection of the larynx will be found in diagnosing diseases and growths, and also in assisting in more completely removing them. Thus, for example, malignant growths can be thoroughly viewed and portions removed for examination. Tubercular disease can be medically and surgically treated with great thoroughness. Abscesses can be opened with precision. Cicatricial bands of any kind can be accurately removed. Papillomata, fibromata, and all benign growths of the larynx can be easily treated by removal with forceps or by the galvano-cautery—a mode of treatment which I have formerly advocated, even with the employment of the ordinary endo-laryngeal method. The galvano-cautery can be easily employed through Killian's tubes without any risk or injury to the adjacent parts of the larynx. Papillomata in children, which are most difficult to remove by the ordinary laryngeal methods, can be easily taken away when Killian's tubes are used.

Tracheotomy instruments should be ready in case of emergency. A smaller tube for children is inserted, and with a good light the papillomata are seen and removed by means of long crocodile punch forceps of the type which has been described by Dr. Patterson, and bear his name.

In my own practice I have successfully employed these tubes in a number of cases, of which the following three are the most illustrative:

CASE 1. Removal of a Piece of Gristle.—A gentleman, aged forty-five, on August 20 this year, during a sudden fit of merriment at dinner, felt a piece of meat go into his larynx, or, as he described it, "go down the wrong passage." This was followed by a fit of violent coughing and choking, but the effort of Nature failed to dislodge the foreign body, and when the violence of the spasmodic coughing had ceased the patient still felt there was something in his "windpipe," and consulted me next morning.

With the laryngeal mirror a small, dark, foreign body was seen lying in the anterior commissure below the vocal cords. The mucous membrane had become swollen and served to fix the foreign body. The sketch on the opposite page (Fig. 1) indicates precisely the position of the foreign body.

I tried by using MacKenzie's and Whistler's forceps to remove it, without success. The same afternoon, chloroform having been administered, Killian's tube was passed; an excellent view was obtained, and a small piece of gristle, about the size of a pea, was extracted by means of Patterson's forceps.

A considerable degree of hoarseness, due to the swollen con-

FIG. 1.



Piece of gristle lodged in the anterior commissure of the larynx below the vocal cords removed through Killian's tubes.

FIG. 2.



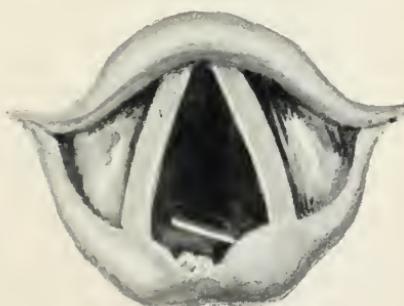
A small benign growth on left vocal cord removed by galvano-cautery through Killian's tubes.

FIG. 3.



Papillomata in the larynx of a child removed by Patterson's punch forceps through Killian's tubes.

FIG. 4.



Fish-bone lodged in boy's larynx and fixed to left arytenoid. Dislodged by paroxysm of coughing during insertion of Killian's tubes.

TO ILLUSTRATE A PAPER ON "DIRECT LARYNGOSCOPY," BY ANDREW WYLIE, M.D.

Meyer Plang, del.

dition of the larynx, remained for several days, but this subsided and patient was completely recovered within a week.

CASE 2. *Benign Growth on Left Vocal Cord.*—A lady, aged thirty-seven, who had been complaining for several months of hoarseness, consulted me in August last.

On examination a very small growth, like a papilloma or fibroma, was seen growing from the upper third of left vocal cord, as illustrated in Fig. 2. I was inclined to apply the galvano-cautery under a local anaesthetic, but the patient was nervous and would not agree to this method. Chloroform was administered, Killian's tube passed, and the growth was gently and leisurely touched with the galvano-cautery. This operation was easier to perform than by the indirect method. Considerable pain and hoarseness lasted for a week, but since then there has been no return of the growth.

CASE 3. *Laryngeal Papillomata in a Child.*—A little girl, aged five, was brought to me in August last. The parents had noted a change in the tone of the girl's voice. At times the voice was completely lost.

A laryngoscopic examination was conducted under great difficulty owing to the struggles of the patient, but several small papillomata were observed growing from both vocal cords (see Fig. 3). Chloroform was administered and the pharynx cocainised. The small Killian's tube was passed and the papillomata, under a good light, removed by Patterson punch-shaped forceps. A considerable amount of bleeding occurred. This was arrested by adrenalin on cotton-wool attached firmly to a long probe. If the papillomata should recur this operation may be repeated with impunity.

CASE 4. *Fish-bone in the Larynx for Three Hours.*—A schoolboy, aged twelve, swallowed at breakfast one morning a fish-bone, which went into his larynx and caused severe spasm, choking, and dyspncea. He was brought to my consulting room hardly able to speak or breathe for the incessant cough and fits of choking. No examination could be made with the laryngoscope and tracheotomy seemed inevitable. Chloroform was administered, and a small Killian's tube was passed. Tracheotomy instruments were at hand. A small fish-bone could be observed lying in the posterior end of the larynx fixed to the left arytenoid cartilage, as depicted in Fig. 4. A thorough inspection was prevented by an excessive spasm of coughing, which caused me to withdraw the Killian's tube, and on

its withdrawal the fish-bone was coughed up and all the symptoms subsided.

The larynx remained red and swollen for a few days, but soon recovered its normal condition.

REMARKS ON A CASE OF ACUTE SUPPURATION OF THE MIDDLE EAR COMPLICATED BY SEPTIC MENINGITIS AND BRAIN ABSCESS.

By W. S. SYME, M.D. EDIN.,

Assistant Surgeon, Ear, Nose and Throat Hospital, Glasgow.

THE case which I wish first to relate and afterwards to offer some remarks upon was that of a school-boy, aged fourteen, whom I was asked to see by Dr. I'Anson, of Whitehaven, on March 5 of this year. On that day he had a discharge from his left ear of a week's duration. At first there was also a discharge from the right ear, but this had ceased after two days, and at the time of my visit this ear had recovered. The aural condition had followed a mild attack of influenza, which was especially prevalent in the school, and which in several cases was complicated by pneumonia. On February 28 this boy had a slight rigor with sickness, the temperature rising to 103° F. It fell the next day and did not again rise till the morning of March 5, on which evening I first saw him. His condition then was: free discharge from left ear with a fair-sized perforation in the *antero-inferior* segment of the membrane. No pain over the mastoid and no tenderness on pressure, no severe headache, *photophobia*, ocular paralysis, or other symptom suggesting intra-cranial lesion. There was no mental dulling, the temperature was 100° F., and the only anxious point was the somewhat slow pulse—70. I contented myself with recommending the ordinary antiseptic treatment of acute middle-ear suppuration together with a brisk purge. For two or three days he went on satisfactorily, and those in attendance on him thought he was quite in the way of recovery. On the third day, however, he seemed somewhat dull, answering only slowly when spoken to. At the same time tenderness appeared at the anterior part of the tip of the mastoid process, and also over the region of the antrum. The pulse-rate, too, had fallen to 60. On March 9 I saw him again. We could find no other sign or symptom suggesting cerebral complication, except the mental dulness and slow pulse, but in view of these and the mastoid tenderness I decided

to operate, and with the assistance of Dr. I'Anson and Dr. Macpherson I opened the mastoid cells and antrum, doing the ordinary radical mastoid operation, and exposed the dura of the middle fossa above and the lateral sinus behind. Towards the inner side of the tip of the mastoid the cells had commenced to break down, but otherwise they were in a condition of intense inflammation such as I have never seen. In the attic and aditus some soft granulations were found. The dura in the middle fossa was more injected than usual and the pressure seemed slightly increased. On this account we discussed the advisability of incising the dura, but finally decided against doing so. The lateral sinus appeared healthy. Considering that it was possible that further operative measures would be required I left the wound open. The immediate result of this operation was an improvement in the mental condition, and an increase in the pulse-rate. On the 12th, however, the temperature began to rise, till on the morning of the 13th it reached 105.4° F. On the evening of this day I saw him. Mental dulness had become more marked and was now accompanied by restlessness. He complained of pain in the lumbar region, and had once or twice had an involuntary evacuation from the bowels. The operation cavity was satisfactory. I exposed the sinus still further backward and downward. Posteriorly it appeared healthy, but toward the lower part the wall was greyer and apparently thicker than usual; it still contained fluid blood. Protecting the sinus with gauze, I opened the dura in the middle fossa, and at once gave exit to a small amount of pus. On passing a director backwards into the posterior part of the temporo-sphenoidal lobe it met with little resistance, and on withdrawing it shreds of what appeared to be broken-down brain tissue escaped, giving one the impression of commencing necrosis or abscess of the surface of the lobe. After introducing a drain I cleansed the operation cavity and proceeded to open the sinus, expecting to find changes in the inner wall with mural thrombosis. The vessel bled freely, but on controlling the posterior part of the sinus the haemorrhage from the lower part was seen to be slow and was easily stopped. Though no changes were detected in the inner coat of the sinus at the place where it was opened, it is probable that nearer, or in the jugular bulb, thrombosis had occurred. I did not, however, think it advisable to carry the dissection lower.

After two or three days the patient became comatose, and died just a week from these last operative measures.

No *post-mortem* was obtained.

In looking back on this case several points of interest and worthy of consideration present themselves. There can be no doubt, I think, that the actual cause of death was septic meningitis, with acute necrosis or abscess of the temporo-sphenoidal lobe. The point of entrance of the infection was probably the roof of the attic, that is to say, directly from the tympanic cavity, and not from the antrum or cells. The age of the patient, and the presence and site of the granulations occurring in an acute suppuration, suggest that we had here a process of the meninges directly in communication with the tympanum by way of the petro-squamosal suture, while the early rigor suggests the presence of a petro-squamosal sinus which is occasionally found passing directly to the lateral sinus. On first seeing the patient his condition was such as is commonly observed in acute suppuration of the middle ear, and those phenomena pointing to cerebral irritation, if nothing more, to which the term "meningism" has been applied, were by no means so marked as one sometimes gets them in cases of this disease, especially in the children in whom even congestive changes in the optic discs may be found, which recover without complication, or at the most, with extension only to the mastoid cells and antrum.

An example of each of these will bring into relief the features of the case I have described.

I received an urgent request from a medical man to see a young woman in whom cerebral symptoms had arisen in the course of an acute middle-ear suppuration. When I arrived I learnt that she had had a shivering attack, hardly amounting to an actual rigor, the night before. The temperature had risen to 103° F., the pulse was slow, and she had become drowsy and difficult to rouse. She was somewhat better when I saw her; the temperature was 100.2 F., pulse 64, and though she was still mentally dull she answered, though slowly, when spoken to. There was only a small amount of discharge from the middle ear, through a perforation in the antero-inferior segment of the membrane. There was no sagging of the posterior superior wall of the meatus, only slight tenderness over the mastoid, and no definite symptoms of intracranial complication. After, of course, consideration of the question of operation, we decided, in view of the slight improvement, to wait, and the patient recovered without any extension of the disease.

In another case, in which meningism was fairly well marked, the mastoid became involved and on operation was found com-

pletely excavated. Here lethargy was a marked feature, the pulse, too, was slow, and the optic discs were congested, with blurring of the edges, and this was especially noticeable on the right side, which was the side on which the ear disease was; vomiting had occurred several times. The patient recovered completely after the operation on the mastoid.

Such cases are not uncommon, and one has difficulty sometimes in holding one's hand.

After the first operation on this school-boy it seemed to me that the condition of the mastoid, pointing, as it did, to the action of some strong infective process, was sufficient by its proximity to account for the cerebral symptoms, or that we had to deal with a serous meningitis due to toxic substances absorbed from the attic. The increase in the intra-cranial pressure which we noticed lent support to this view, and made me consider the question of making an opening in the dura. The further course of the case made it more than probable that this was the actual condition at that stage, and that it was later, and, it may be, aided by the curetting of the granulations in the attic, that the organisms themselves found their way into the subdural and subarachnoid spaces, with the consequences already described. In this case it would seem that lumbar puncture might have been of value both diagnostically and as a method of treatment in the early period of the case. Under similar conditions I should certainly make use of it, as I have done with advantage since reading this paper.

VASELINE OIL IN THE DRESSING OF THE RADICAL MASTOID OPERATION.¹

By DR. J. N. ROY,
Physician of the Hôtel-Dieu of Montreal (Canada).

FOR some years past the dressing of the mastoid operation has been done in several different ways. In 1902 Eeman, of Gand, in his first communication to the Belgian Oto-rhino-laryngological Society, extolled the use of boracic acid. In the following year he returned to the same theme, and reported statistics of thirty-eight patients treated by his method.

In 1905, Mahu, of Paris, presented before the French Oto-rhino-laryngological Society a new procedure, which consisted, not in

¹ Paper read before the Canadian Medical Association, Montreal, September, 1907.

packing the wound, but only in draining it by a strip of gauze placed upon the floor of the canal.

It is not my intention here to discuss the opinion of Laurens, which, in certain cases, would make the dressing of the radical operation identical with that of trephining in simple mastoiditis. This would be going too far outside my subject, inasmuch as in the present communication I desire to speak only concerning epidermisation, and not concerning the filling up of the wound after operation.

All these different procedures are merely modifications of the classical German method, which consists in bringing about the epidermisation of the cavity by means of gauze packing.

During the month of June, 1905, it fell to my lot to perform the radical mastoid operation, and, in spite of all possible care in the dressings, healing was long delayed. After having used, without success, all known procedures, I fell upon the idea of making an entire change of method, and of replacing dry dressings by oily ones. The wound, which I had been treating for more than six months, was healed in ten days. Later I had, together with certain *confrères*, the opportunity of experimenting further with these oily dressings, and with no less success. In consideration of these facts I feel justified now in laying down the following rules for this new method of dressing:

Radical operation is done as usual, but the surgeon should choose by preference an autoplasic procedure, which will allow him to sew together the lips of the wound behind the ear, and especially so if he has not to do with a cholesteatoma. For complete haemostasis the post-operative dressing should be slightly compressive, and iodoform gauze should be used. About the sixth day the gauze is taken out, and the wound is carefully cleaned with hydrogen peroxide, then dried with cotton. Little strips of plain gauze, about $1\frac{1}{2}$ cm. wide and 6 cm. long, are dipped in vaseline oil; one end is introduced into the drum, either by the canal or by the retro-auricular opening, and the other end remains outside the wound. The whole cavity must be carefully carpeted with this gauze, and the strips should overlap each other slightly. Upon this first layer cotton is applied sufficiently saturated with liquid vaseline to be well packed in. In doing this packing, which must be fairly tight, it is necessary not to leave any dead spaces, so that to this end it is better to use little pledgets of cotton. A great deal of care must be given to the external meatus and to the operative opening of the canal. It must be packed rather tightly,

on the one hand to prevent any subsequent narrowing, and on the other hand to maintain the apposition of the flaps. When the cavity is well filled the dressing is finished with dry cotton and a bandage. It is scarcely necessary to add that the vaseline, the oil, and the cotton should be sterilised, and that the surgeon should conform to the most careful asepsis. At first the dressings must be done every day, but when the secretion of the wound lessens and epidermisation is going on normally they may be done every second day. The dressing should be removed very slowly. Inasmuch as the strips of gauze sometimes stick to the skin, it is better to take them out by pulling from outsides inwards, after having moistened them with oil or with peroxide. Subsequently, the wound is cleansed with peroxide, carefully dried, and before replacing the dressing in the manner described care must be taken to see that no stray ends of gauze are left. In the presence of any possible complication one must act according to circumstances. The technique of the method, as may be seen, is easy.

Case-reports.—In March, 1905, Mr. M—, aged twenty-three, consulted me at the Hôtel-Dieu for a discharge from the left ear which had lasted two months. Upon examination I found a perforation of Shrapnell's membrane and a polyp taking origin in the attic. The removal of the latter was immediately done. In spite of this the discharge continued and the polyp recurred, even after a second operation. In April I decided to perform removal of the ossicles with thorough curetting of the attic. The hammer and the incus were removed and the post-operative course was normal; nevertheless, the ear continued to discharge and the polyp again recurred. Towards the end of May patient became a little feverish following a slight attack of mastoiditis. Evidently there was still retention; the treatment was giving no result, and symptoms were increasing. In June I performed the radical operation. The antrum, the aditus, and the attic were found to be filled with granulations, due to the osteitis. Panse's autoplasty method was employed; the dressing was done daily, plain gauze being used with compression. At the end of four months the cavity had skinned over with the exception of one recess in the floor of the drum, which during the succeeding month refused to heal. I then changed the dressings to boracic acid, and in spite of the small amount of powder insufflated retention occurred, and the patient grew worse. I then contented myself with cleaning the wound and leaving it to nature. A small crust formed, and the cavity suppurated. Being confronted with a total lack of success

from these three methods used over a considerable period of time, there occurred to me the idea of using vaseline oil in the dressings, a method which brought about definite cure inside of ten days, a cure which has been maintained from that time to this.

The two following observations I owe to the kindness of my friend Dr. Lasalle, to whom I have communicated this method, and who was so kind as to try it.

Sister L—, aged thirty-two, suffering from a double acute suppurating otitis media, influenzal in origin, lasting since January, 1905. In March, double mastoiditis, which on the left side got well. On the right side trephining was done in April. Patient was scrofulous and the tissues in poor condition, so that the wound kept on granulating. Tonics were given internally. In April the cavity was still not filled up, the osteitis was persisting, and the radical operation was done using Stacke's autoplasic method. The wound was dressed with clean gauze under compression. In the later course it had to be cauterised and scraped repeatedly on account of recurring granulations and slow epidermisation, and in spite of tight dressings the cavity tended to close. The peri-tubal cells were causing osteitis, so that in December, 1905, a complete curetting was done; the former dressings were again employed but alternating later with those of other methods. One year later there still remained one third of the wound to become covered with epidermis. Finally, dressings with vaseline oil were tried and definitely cured the patient.

Mrs. P.—, aged thirty-six, had suffered with a discharge from the right ear since her childhood. Following a coryza she had an attack of mastoiditis in December, 1906, and a sub-periosteal abscess. On December 22 the radical operation was done. There was no cholesteatoma, but there was destruction of a large portion of the peri-antral cells and of the posterior bony canal. The dura mater and the lateral sinus were laid bare by the osteitis. The ossicles had disappeared as the result of the suppuration. The Stacke autoplasic operation was done, followed by packing with iodoform gauze. On the sixth day the first dressing with liquid vaseline was done. By the commencement of January the cavity was beginning to skin over. On January 31 the epidermis had covered three quarters of the wound. With the compressive dressings with vaseline oil all narrowing of the cavity had been prevented; the patient suffered no pain; the wound did not over-

granulate, and never suppurated. By February 14 the patient was completely cured—that is, after fifty-four days of dressings.

Discussion.—If now we take a rapid survey of the advantages and the disadvantages of these various procedures we shall see that: The classical German method which consisted in gauze packing is very painful; moreover, it is impossible to fill up completely the operative cavity, and especially the drum. Inasmuch as these dressings irritate the tissues, there are formed granulations which necessitate repeated scrapings and cauterisation. Add to this the fact that treatment must extend over several months.

Upon the admission of Mahu himself, the procedure which consists in letting Nature have her way and in simply draining the cavity is applicable only when there is present simply osteitis. The operative cavity not being lightly packed, naturally the walls fall in, and this may occasion serious complications. Moreover, there is formed an excess of granulations which retard epidermisation.

As to the method of Eeman which seems to be most in favour with otologists, the same objection must be made to it as to the preceding method. In the absence of tamponing, the cavity has a tendency to close over, and the recurrence of a cholesteatoma might even render necessary a second operation. Boracic acid more or less dissolved by the secretions of the wound forms an irritating paste and promotes excessive granulations. Finally, the pain of the dressings during the first three weeks has been alone sufficient to prevent many surgeons from continuing to use it.

With vaseline oil the surgeon is able, according to his wish, to allow the wound to close in by merely packing more or less tightly; or, on the other hand, to preserve the shape of the cavity such as it was immediately after operation. The granulations in contact with this aseptic fatty body are perfectly protected against all infection, and have no tendency to grow exuberantly or to suppurate. The epidermis formed is solid and extends quickly over the well-prepared osteo-fibrous bed. No pain is felt at any time during the dressings. The patient whose history was last related was cured in fifty-four days. It would be easy now to secure complete healing in much less time by suturing the margins of the retro-auricular wound immediately after operation. I do not wish to discuss the value of Thiersch's skin grafts; yet the partisans of this method will find in vaseline oil, after drying and freshening the wound, one of the best methods of dressing for this small operation.

Among all the oily substances, I have concluded that liquid vaseline was to be used in preference to vegetable oils. We can get the same results, according to my experience, with other oils; for example, olive oil and sweet almond oil. Still, we know that these are often adulterated and rapidly become rancid by a fermentation which changes them partly into oleic acid or other analogous acids, and they may thus become very irritating to the tissues with which they come in contact. Moreover, the least lack of asepsis is capable of making of them an excellent culture medium.

On the other hand, liquid vaseline has none of these disadvantages. It is a neutral mineral oil, and it does not change either with light or in the air; consequently it does not become rancid. It is very stable and can resist the action of the most energetic chemical substances; moreover, it cannot be infected. For these reasons it is to be preferred to all other oils for this kind of dressing.

The small number of patients treated hitherto by this new procedure does not allow me to deduce fixed conclusions. The aim of this communication is rather to submit this method to my *confrères*, and to suggest that they should try it, and, later, communicate the result of their personal experience.

In conclusion I would remark that with vaseline oil dressings: (1) There is no pain; (2) the wound does not granulate; (3) epidermisation proceeds rapidly; (4) the cavity retains, if so desired, the shape which it had immediately after operation.

OBSERVATIONS ON FRONTAL SINUSITIS.¹

BY CHICHELE NOURSE, F.R.C.S.ED.

THE following observations upon frontal sinusitis pertain almost entirely to that affection in its chronic form.

Acute frontal sinusitis, as met with by the surgeon, is accompanied by symptoms which are sufficiently definite in character, and it usually tends to resolution without the necessity for operative interference. Cases generally yield to inhalations of mentholised steam, the application of adrenalin and cocaine to the middle

¹ A paper read in the Section of Laryngology at the British Medicine Association meeting at Exeter.

meatus, and other medical measures. Occasionally it is possible to pass a curved probe through the fronto-nasal canal. In one such case the introduction of the instrument was followed by a gush of bloody discharge, immediate relief from pain, and a speedy cure.

It is not clear what relationship, if any, exists between these cases and the chronic form. Not only does it seem that perfect recovery from acute sinusitis is the rule, but generally in chronic cases there is no history at all of any previous acute catarrh. In one case only was a history obtained of what might perhaps have been a previous acute attack. On the other hand many sufferers from chronic sinusitis state that they have previously suffered from attacks of coryza.

As the distinctive symptoms of acute frontal sinusitis are due to retention, it is possible that there are other cases also, without retention and therefore without symptoms, which pass unnoticed, and it may be that these sometimes lay the seeds of chronic disease. Whether this is so or no, or whether chronic sinusitis takes its origin *de novo*, cannot at present be determined.

Certainly most cases of chronic frontal sinusitis are latent from the first. As stated by Luc, the entire clinical expression of the affection may be confined to a discharge of pus from one of the nostrils or into the pharynx. The other prominent symptom is pain over the frontal region, which is very frequently present; and it may be observed that neither pain nor tenderness in chronic frontal sinusitis is dependent upon obstruction of the fronto-nasal canal or retention of discharge.

The condition of things which is found is altogether different from that present in acute sinusitis, where the primary seat of the disease is the epithelial surface, as in any other acute catarrh.

In chronic sinusitis, on the other hand, with the exception of certain cases, to which reference will presently be made, the disease is located in the substance of the muco-periosteum itself, which is not only engorged with blood, but oedematous, and infiltrated with inflammatory products. It is often thickened to an enormous extent, and polypoid outgrowths project into and greatly diminish the lumen of the sinus.

A considerable secretion of pus takes place, but it trickles away nearly as fast as it is formed, partly because there is no room in the sinus for any large collection, and chiefly because the ostium, situated at the lowest and most dependent point, is usually widely open.

As a rule the fronto-nasal canal becomes larger than in the

normal state, and the pus drains away continuously in a scanty stream, often so small as to be scarcely noticeable. Sometimes, however, a granulation or a cluster of polypi may impede the exit of discharge, which then collects in greater quantity; or the lining of the fronto-nasal canal may become acutely inflamed and swelled from some temporary cause.

Permanent retention does occasionally occur, with the production of an entirely different clinical picture, but it is not common.

Sometimes the disease extends to or penetrates the bone and gives rise to complications, and there are some cases besides in which a bony swelling occurs over the diseased sinus, due apparently to a limited area of osteitis.

Two such cases of bony swelling have been recorded by Dr. Scanes Spicer (Journ. of Laryngol., Rhinol., and Otol., 1902, p. 124, and 1905, p. 378), both of which were apparently specific; one by Dr. Peters (*ibid.*, 1906, p. 295); and one probably similar by Mr. F. J. Steward (*ibid.*, 1903, p. 264).

The author has met with this condition three times, in each of which the bone was thickened and vascular.

CASE 1.—*Left frontal sinusitis and empyema of the antrum.*—A bank clerk, aged thirty, whose occupation consisted in counting dirty silver money. Duration of symptoms two years. Left frontal pain, mental dulness, continual discharge into the throat. Marked prominence of the bone over the left frontal sinus. No tenderness. Intra-nasal treatment of sinus by injections for eighteen months before the radical operation. Sinus contained granulations and pus. A second operation performed four months later. Antrum drained through alveolus. (Case shown at the British Laryngological, Rhinological, and Otological Association in 1899.)

CASE 2.—*Left frontal and maxillary sinusitis.*—A girl, aged twenty. Duration of symptoms two years. Discharge from the left nostril, subjective factor, swelling of forehead, tenderness, pain. Operation. Bone thickened externally over sinus and rather vascular. Lining membrane thick and red. Sinus contained granulations. Operation on antrum twelve days later.

CASE 3.—*Right frontal and ethmoidal sinusitis.*—A traveller, aged thirty-four. Duration of symptoms two and a half years. Discharge from the right nostril, frontal headache, bony swelling over right frontal region. Puffiness in upper part of the right orbit and swelling of the upper lid. Local tenderness. Supposed

cause, a cold following an evening cycle-ride. Sinus contained pus and granulations.

Exceptionally the author has met with a condition which can only be regarded as chronic catarrh. In these cases the symptoms were the same, but the sinus contained thick mucus, and the lining membrane was hardly thicker than the normal.

A similar case has been recorded by Mignon, of Nice, in December, 1903 ("Abstract," Journ. of LARYNGOL., RHINOL., AND OTOL., 1904, p. 170). A woman, aged thirty, complained of great pain in the left frontal region, which was less translucent than the right. Local applications and irrigation through the catheter gave no relief. At the operation the sinus was found to contain only mucus secretion.

CASE 4.—*Chronic catarrh of frontal sinus.*—Male, aged twenty-five. Duration of symptoms six months. Discharge from right nostril for six months. Frontal headache for two or three months, with severe paroxysms. Polypoid degeneration in the middle meatus. The patient had influenza nine months before. There was a definite history of syphilis five years earlier, and he had been a heavy drinker. Sinus full of thick, jelly-like, greyish, transparent mucus, which welled up under pressure when the sinus was opened. There were one or two masses so thick as to resemble polypi. No bleeding from the lining of the cavity. A little later the patient developed tertiary disease in the nose and a gumma in the tongue.

CASE 5.—*Maxillary and ethmoidal sinusitis, and catarrh of the frontal sinus.*—A servant-maid, aged thirty-five. Duration of symptoms two years. Frontal headache and nasal discharge. Recurrent nasal polypi. Frontal sinus small; it contained thick, grey mucus. The maxillary antrum and ethmoid were dealt with later.

CASE 6.—*Catarrh of right frontal sinus.*—Male, aged twenty-nine, came under treatment in 1903 for right maxillary and ethmoidal sinusitis; after some local treatment he was operated upon in 1904. The right frontal sinus, which appeared less translucent than the left, was examined at that time with a curved probe and cannula, and appeared to be healthy. The patient lost all his symptoms, and seemed to be perfectly well.

In September, 1906, he returned again with the following history: A fortnight before, while at the seaside, he had very severe pain on the right side of the head lasting for two days, then a yellow discharge came from the right nostril and he felt relief. Since then he had constant pain over the right eyebrow, a profuse

discharge of pus from both nostrils and into the throat, and stiffness round the back of the neck, which, he said, made him lose himself.

In March, 1907, the right frontal sinus was opened. It was very large, extending as far as the outer angle of the orbit, and upwards for some distance. The lining membrane, which was thin, was distended with thick, opaque, grey mucus, which Dr. Wyatt Wingrave kindly examined. His report was as follows: "The "material consisted of mucin, with a small amount of globulin. "There were only a few lymphocytes and leucocytes, and no epi- "thelial elements. The only bacteria present were a few diplo- cocci." A month after the operation the patient reported that the headache and pain over the brow were gone, but that he still had a little stiffness round the neck. All discharge of pus had ceased.

In one case both frontal sinuses were full of polypi.

CASE 7.—*Double frontal sinusitis; polypi.*—A coachman, aged twenty-five, was sent on account of polypi, which completely filled both nostrils. They had been removed several times. Duration, two years or more. After removal of the polypi at several sittings the frontal sinuses were examined. On the right side the probe entered, but not the cannula. On the left side the cannula entered easily, and on perflation blood and pus were expelled. Both sinuses were large, and were quite full of mucous polypi. The left sinus had an extension backwards over the orbit. This side afterwards gave trouble and was re-opened.

In reference to diagnosis, the establishment of a certain conclusion as to the presence of chronic frontal sinusitis is not always easy. For this purpose the frontal sinus cannula is particularly useful. The only method of making the diagnosis absolutely sure is by demonstrating the presence of pus in the sinus. With this object it has been suggested to dam up first one and then another of the ostia in the hiatus by small tampons of gauze, and after cleansing the parts to watch for the reappearance of a bead of pus. But the most satisfactory way of investigating the condition of the sinus is by means of a probe and cannula.

If a suitably-curved instrument can be introduced into the sinus, and discharge blown out, the existence of a diseased condition is proved beyond question, and radical treatment can be undertaken with much more confidence.

It is not always possible to introduce a probe through the fronto-nasal canal from the nose, especially if the sinus and canal are healthy, but if the instrument is of a suitable form it can

certainly be effected in the majority of instances where the sinus is suppurating. The fact has already been stated that in such conditions the fronto-nasal canal is generally of a larger calibre than in the normal state. This is of such regular occurrence that the author considers that a sinus which would not admit a probe after two or three careful trials is probably healthy.

As regards the form of the instrument, each surgeon probably has his own preference. For diagnostic purposes it should be of such a shape that there can be no doubt of its position when it is in the sinus.

The floor of the sinus slopes downwards from front to back towards the ostium, which is usually situated at its hinder and most dependent part. The fronto-nasal canal, in health generally a short and narrow track between ethmoidal cells, is directed downwards, backwards, and a little inwards, and enters the middle meatus of the nose at the upper end of the hiatus semilunaris, or just above it. In a certain number of cases there is no canal, but the lowest point of the sinus opens directly into the middle meatus.

Lichtwitz remarked that the axis of the fronto-nasal canal forms about a right-angle with a line drawn from the hiatus downwards and forwards to the hinder edge of the nasal orifice.

The form of the probe and cannula preferred by the author consists of a segment of one third of the circumference of a circle with a straight shaft. It has only one drawback, namely, that the long curve makes it sometimes a little difficult to introduce; this, however, becomes less by practice.

It has been said that if the quantity of pus flowing from the middle meatus is profuse, the frontal sinus is the cavity affected, but this is not quite correct. From a suppurating frontal sinus with a gaping ostium, the secretion drains away as fast as it is formed, often in a stream which is so nearly imperceptible as to escape notice until a blast of air driven through the cannula dislodges the few drops which are retained in the interstices between the polypoid masses, and causes them to appear alongside of the instrument. A drop of blood sometimes trickles down the cannula.

In all the author's cases the sinus had been examined with the probe previous to operation.

In two cases only was a cannula of Hartmann's pattern with a wide curve passed more easily than the much curved form. In one of these the ostium lay near the front of the floor. In general, the pattern described is most suitable, and in many cases it is the only shape which will enter.

The fact that the anatomical disposition of the frontal sinus with the ostium at its lowest point is so favourable for good drainage, and the tendency of acute catarrhs to spontaneous cure directly drainage is established, may be used as arguments in favour of treating chronic frontal sinusitis through the infundibulum. A very little further help, it might be said, would be successful, where cure has not been effected by the unaided efforts of nature. But these considerations are based upon the theory that chronic frontal sinusitis is kept up by obstruction of the outlet and insufficient drainage. This proposition is open to doubt.

After a prolonged experience with intra-nasal methods, it must be confessed that the results so far have been rather disappointing.

The cases were treated by irrigations and injections of various kinds through the cannula, and, further, with the view of creating a large outlet for discharge, rubber drainage tubes of increasing sizes were introduced into the fronto-nasal canal and worn constantly by the patient for a week or two at a time. It is true that the symptoms can thus be often reduced to a minimum, but they are apt to recur, and we have to fall back on radical measures after all.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

Thirteenth Annual Session, held in New York City, May 30, and 31, and June 1, 1907.

WENDELL C. PHILLIPS, M.D., of New York, President, in the chair.

FIRST DAY, MAY 30.

Dr. JOHN A. WYETH, President of the New York Academy of Medicine, welcomed the Society on behalf of the Academy.

Research Prize.

The PRESIDENT, in recounting the recent achievements of the Society, called attention to the fact that the Council had set apart

from its funds a sum of \$500 as an original research fund, from which a reward could be made to any member whose labours in the field of laryngology, rhinology and otology should be productive of results showing originality. One carefully prepared essay had been submitted last year, but was not deemed quite up to the standard required by the Council in conferring this prize. During the present administration no essay had been submitted. The Society had also set apart a further sum of \$1000 as a foundation for a permanent fund. In order to legally hold and invest such funds steps had been taken to have the Society incorporated.

Modern Methods in the Repair of Cleft Palate.

Dr. JOHN B. ROBERTS, of Philadelphia, read this paper by invitation. He considered especially the treatment of clefts of the hard palate. This condition was usually accompanied by cleft of the soft palate, often by cleft of the alveolar process of the jaw as well, and was very frequently associated with single or double fissure of the upper lip—so-called hare-lip. The impossibility of obtaining and maintaining an aseptic wound in the mouth and nose, and the insufficiency of the available tissues for osteoplastic reconstruction without undue tension, had often rendered operative treatment unsatisfactory. Efforts to complete the partition between mouth and nose by means of obturators with an attached movable velum had not been altogether successful. Plastic reconstruction was superior to the use of obturators and artificial substitutes for the hard and soft palate. He agreed with Brophy that in the majority, if not in all, cases the cleft is due to a separation of the two halves of the roof of the mouth rather than to an actual absence of bony tissues. Non-union of the palate processes of the two upper maxillary and the two palate bones caused the congenital fissure. If the separated halves be forced into apposition the partition wall between nose and mouth would usually be re-established. The bony roof of the mouth should, then, be re-created as soon as possible after birth, providing this can be done without grave risk to life. A simple and most efficient method of doing this was that devised by Brophy, which consisted in carrying wires through the two segments of the upper jaw, forcing them together while they are semi-cartilaginous, and holding them in contact by twisting the ends of the wires over lead plates. This operation should be performed within a few days or weeks after birth, although its performance is possible up

to six months after birth. In the latter cases, however, the cartilaginous jaw has usually become too rigid from ossific deposits to be thus drawn into proper shape, and coaptation was possible in some such instances only after dividing the jaw above the alveolus, thus increasing the gravity of the operation. The bony roof of the mouth would be firmly reconstructed after the wire "tie-beams" have been left in position for a couple of months, after which the wires might be removed and the fissure in the soft palate closed with sutures.

The importance of operating in earliest infancy, while the bones are sufficiently soft and pliable to be bent into place by the surgeon, was emphasised. The partition between the nose and mouth must be completed in early life, in order that the nasal chambers, their accessory sinuses, and the naso-pharynx may be properly developed—expanded—by giving to the current of the respiration the normal or physiological direction. The wire tie-beam method could not be employed after the displaced upper jaw bones have become ossified in their unnatural position. The gap must now be covered by muco-periosteal flaps obtained from the oral or inferior surface of the palate processes of the upper maxillary and palate bones. This operation should be undertaken before the eruption of the molar teeth. The form of flap preferred was that suggested by Lane. This stage of the operation, as described by both Lane and Brophy, was given in detail. In either method the soft palate should be freely detached from the posterior edge of the hard palate before the sutures are inserted, thus permitting the velum and uvula to drop towards the mouth, thus greatly facilitating the repair of the cleft without tension on the stitches. The hare-lip should, as a rule, not be repaired until the palate had been reconstructed.

Operations for Cleft Palate and their Results, especially in Respect to the Improvement of Speech.

Dr. G. HUDSON-MAKUEN, of Philadelphia, who read this paper said that in difficult cases, where more than one operation by simpler methods might be necessary, he was inclined to favour the method described by Dr. James F. McKernon, of New York City, in which a preliminary tracheotomy is done, the patient breathing through a tube during the operation and during the process of healing, the nasal and oro-pharyngeal cavities being packed. The objection that a second operation of some gravity is thus added to

the cleft palate operation was off-set by the completeness and permanency of the closure of the cleft when the parts are kept comparatively clean and at rest during the process of repair. In the technique of the procedure for the closure of cleft palate there was much room for improvement. These operations should go to the oral and nasal surgeons instead of to general surgeons, for not only would the former do better work, but they would devise more suitable appliances and instruments than now exist. The anaesthesia tube of Fillebrown, modified by Dr. Mary Rupert, of Philadelphia, was mentioned in the way of improved instrumentation. A syphon pump attachment for the removal of mucus and blood from the oro-pharynx would be a further improvement. The two reasons for performing the operation for the closure of the palatal cleft were, first, the improvement of the general health of the patient, and second, the improvement of the voice and speech. Of the improvement of the physical condition following this operation there could be no question, but his experience had been that the mere closure of the cleft palate in an adult person would not, as a rule, improve the speech to any appreciable extent. He was inclined to believe that in the cases where improvement had been noted some outside assistance had always been rendered. The degree of success obtained was generally proportionate to the skill of the teacher and the ability of the patient for persistent and concentrated effort. A deep-seated, neuro-muscular disturbance or perversion, which was more than a habit of speech, had arisen from Nature's effort to accommodate itself to faulty structural conditions. In the absence of the normal palate the patient tried to substitute, for purposes of speech, certain other organs down in the throat, such as the epiglottis, the ary-epiglottis, the ary-epiglottic folds, and the ventricular bands, and as a result of this substitution faulty musculatures were developed, including a faulty development of the nerve centres supplying them. It should be remembered that the perversion is psychical as well as physical, there being a faulty development of the central as well as the peripheral mechanism of speech, including the receptive, the executive, and even the intellectual centres. The correction of these conditions was by no means simple. The patient, having no ear for correct speech, must learn it by a long plodding process. The faulty psycho-physical conditions were increased with time, hence the importance of operating before the period of speech development, or within the first year of life, provided the child's vitality will allow it. Ehrman had given the mortality after operations upon infants for cleft

palate and hare-lip as high as 50 per cent. In the adult cleft palate case training would do more for the improvement of speech than would the operation itself. In other words, better speech could be developed by training alone than by operation alone. This was because speech is defective in two important particulars, viz. in resonance and in articulation. The extent to which resonance of the voice could be improved by the mere closure of the cleft was very slight; the operation was of greater service as regards articulation.

Dr. JAMES MCKERNON, of New York City, thought cleft palate work in adults could be more readily done by packing off so as to prevent the passage below of blood and other fluids. To this end he formerly did a preliminary tracheotomy, then proceeded with the cleft palate operation. He had employed this method for the past seven years in twenty-four cases without a death and with sixteen primary unions. By giving the anaesthetic, then, through the tracheotomy tube, the operator was enabled to work much more rapidly. He advocated early operation and commended the excellent work accomplished by Dr. Brophy. If the patient had reached two and a half or three years of age before operation it would be necessary to teach them if any improvement in speech was obtained. He had never seen much improvement in adults following this operation, unless they were trained as advised by Dr. Makuen. He was interested in Dr. Roberts' technique, particularly as to the averted flap. He had always used the muco-periosteal flap, and in all but two cases had employed wire suture, with which he had had very good results. For the past four years instead of doing a preliminary tracheotomy he had had the anaesthesia given by the Junker method.

Dr. TRUMAN W. BROPHY, of Chicago, believed that closure of a cleft palate by surgical means was merely following up and completing work which Nature had failed to do. In infancy there was always enough tissue to form a perfect palate, but in some way, probably in embryo, the bones had been driven apart. He regarded the preparation of the patient as essential. He had never done tracheotomy as suggested by Dr. McKernon. The nose and mouth should be prepared by removal of adenoids and hypertrophied tonsils, and otherwise getting the field of operation in as nearly perfect condition as possible. The matter of haemorrhage was an important consideration with reference to early operation, inasmuch as there is no haemorrhage in infants. The great mortality referred to by Dr. Makuen was due largely to haemorrhage.

He had not had a mortality of more than 5 per cent. The children who had come to him had one or all of the defects which result from the vices of parents. No sick child should be operated upon, but if the child be healthy the chances were that it would go through the operation and recover, provided the operation be done early enough. A new-born infant had bones with so little calcium salts that with the thumb and finger the parts might be pressed together, so that all that was necessary was to fix them until union has taken place. The risk was greater after the fifth or sixth month. He emphasised what Dr. Roberts had said to the effect that a young child is not so capable of receiving shock as a child a little older. It had been the practice through the years to close the lip and leave the palate open. The tuberosities of the bone and the distal molar teeth were always spread out, and the curtain of the palate was like a drum-head, so to speak; if the operation were made when the bones could be brought together the palate would then develop normally, as it had in the patient just presented to the Society. He, therefore, considered it unfortunate that the lip is closed first. The contraction of the orbicularis muscle would bring the parts in contact, but would not close the fissure at the distal part. He had found that if the mouth is properly prepared before operation and kept clean afterward whatever infection might be manifest would come from the nasal surfaces, hence it had been his custom to use a spray of argyrol in the nose five or six times a day in order to keep it in as nearly an antiseptic state as possible.

Dr. CHRISTIAN R. HOLMES, of Cincinnati, Ohio, reported some satisfactory results and some which were unsatisfactory, the latter being due to an improper selection of cases. In one case where there was some infection he had made the mistake of using hydrogen peroxide, which led to stitch infection. While Dr. McKernon had been remarkably successful in cases where he had made a preliminary tracheotomy, he would not himself be willing to add this additional danger to that of the cleft palate operation.

Dr. JOSEPH H. ABRAHAM, of New York City, presented a patient, aged five, upon whom Dr. Brophy had operated three years ago with perfect result.

Dr. LEFFERTS A. McCLELLAND, of Brooklyn, believed the mortality of 50 per cent. mentioned by Dr. Makuen very high. With the operative field fully in view; made possible by means of the Brophy mouth gag, which not only holds the mouth wide open, but covers the tongue, pushing it out of the way, besides aiding the illumination, it was possible to perform the operation with

practically no haemorrhage and little trouble from the mouth secretions, which are easily wiped away by means of sponges on sticks or by the use of the long sponge forceps of the Brophy type. Of course, deftness in handling the various instruments was a desideratum of the utmost importance, and it was here that such a disparity in results was noticeable. In Professor Brophy's operations the glide from one step to another was so rhythmical and accurate that it would seem as if it were possible for general operators to procure his ideal results with low mortality. Such results, however, had not as yet become general.

Dr. ROBERTS, in closing the discussion, agreed with those who had said that the mortality in infants under the old method might be high; with the Brophy method it was not high. He had become so discouraged with the old methods that he had at one time used mechanical appliances made by dental experts, instead of operating; but now he felt it better to operate very early in accordance with the views and methods of Brophy and Lane.

Dr. MAKUEN, in closing the discussion, said the mortality mentioned in his paper was given merely to show that in the opinion of one observer the early operation was a serious matter. Personally he did not see how the worst kind of bungling could bring about a mortality of 50 per cent. He saw no reason why the speech should not develop in a normal manner if the defect in the palate is entirely corrected before the developmental speech period begins.

The Pre-maxillary Wings and Deviations of the Nasal Septum.

Dr. HARRIS P. MOSHER, of Boston, Mass., in summing up this paper, said that a large number of deviations of the septum are caused by asymmetry in the development of the bones which make the hard palate. This inequality of development was usually due to delayed or irregular eruption of the incisor teeth, especially of the middle incisor. Delayed eruption of the teeth was caused in great measure by some disturbance of nutrition. When the eruption of one central incisor was sufficiently delayed it caused a deformity or hypertrophy of the pre-maxillary wing above it. This distorted the retaining groove made by the pre-maxillary wings. As a result the septum slipped from its bed in the vomer, and the groove made by two leaves of the vomer, spread open, one leaf or side of the V disappearing. This produced a spur along the upper edge of the vomer. As the cartilaginous part of the septum slipped from its bed the lower edge curled upward and outward,

so that its lower portion became concave. Higher up on the septum this concavity gave place to compensatory convexity. The convexity generally was toward the spur. On the side of the delayed teeth a short nasal spur indicated the enlarged pre-maxillary wing. The upper wisdom tooth might deform the septum posteriorly. Occasionally deformity of the septum was caused by asymmetry of one half of the palate. This asymmetry showed in the nasal notches anteriorly and in the choanae posteriorly and in the mouth. Such extensive asymmetry probably was due to unequal descent of the antra. After the teeth were fully erupted and in good line, there remained no evidence of the disturbance caused by their delayed eruption except in the nose. Trauma, as well as delayed eruption of the incisor teeth, could displace the pre-maxillary wings and distort the vomer groove, resulting in spurs and causing deviations anteriorly and posteriorly. The best explanation for the slight anterior deviations which were found so constantly was some fault in the eruption of the incisor teeth. Abundant dissecting-room findings proved that deviations so started might extend far back on the septum and become obstructive.

Dr. E. A. BOGUE, of New York City, said that Dr. Mosher had pointed out with great care the facts of crooked septa and consequently of more or less occluded nasal passages, but admitted that, aside from extraction of the anterior teeth, he saw no cure for the condition. Dr. Mosher had, however, himself indicated the remedy in an allusion in this paper. He had cited four cases, of which he had said: "All of these four cases are from families in good circumstances, so that their teeth have had every chance." This, according to Dr. Bogue, did not always follow. He mentioned one family of seven children, in which one child had splendid teeth, beautifully arranged, good nasal passages and good palate vault. Another child of the same family had irregular teeth, deficient development, and from six to eight cavities in every tooth in her mouth. In fact the physical characteristics of all the children were distinctly different, and the teeth, being dermal tissues, had been affected by all that affects that tissue. When a child became a mouth-breather because of nasal stenosis, the tongue was withdrawn from its proper place in the roof of the mouth, and the pressure of the tongue, which is the formative influence in shaping the superior dental arch, was also withdrawn and lateral development ceased. Not only development of the dental arches, but of the pre-maxillæ, vomer, ethmoid and palate bones as well ceased. Extraction of teeth never helped develop-

ment. It never made room, but on the contrary it diminished the size of the dental arches, just as removing one or two staves would diminish the size of a barrel. It shortened the bite, it diminished the room needed for the tongue, and it interfered with the development of the palatine arch. If the extraction occurred in childhood it caused arrest in the development of the nasal and faucial bones, which could never thereafter attain, unaided, their normal size. If the extraction occurred on one side only it might result in the eyes not being on the same level, so that one of the eyes sometimes remained undeveloped and defective. When Dr. Mosher spoke of the girl aged eighteen, who started with delayed, irregular and crowded teeth, and said that they were carefully regulated and brought into line, so that her septum escaped with but slight deformity, he had struck the key-note of the whole question. If, to begin with, breast-feeding in the infant were promoted; if the child were kept in good health as it continued to grow; if it were given hard, fibrous food when its teeth began to appear, thus enabling it to so exercise the muscles of mastication as to promote the growth of the jaws, little of this retarded development so justly deplored by the essayist would be found. When found, however, it should be recognised that a mechanical obstruction to development exists. This obstruction should be removed by a mechanical enlargement of the temporary dental arches at the earliest proper age, thus promoting the development of the septum, the vomer and the vault of the palate, and so preventing irregularities in the arches of permanent teeth. By so doing not only would a far more effective and durable masticatory apparatus be provided, but a far more effective mechanism for speech and vocalisation as well, the appearance would be improved, and more nearly a normal septum and ample nasal passages would be attained.

Dr. J. M. INGERSOLL, of Cleveland, Ohio, asked Dr. Mosher if he did not consider some of the bilateral projections from the septum as reverions to more primitive types. In many of the lower animals the septum has a bilateral projection partly subdividing each nasal fossa anteriorly. He believed that the spurs occurring along the union of the septal cartilage with the bone were rudiments of these structures.

Dr. CHARLES P. GRAYSON, of Philadelphia, so far from regretting that the paper did not give some information as to treatment, said that Dr. Mosher's work had made clear the causation of the condition, and at the same time he had suggested, not a method of cure, but, what is much better, a method of prevention. He did

not entirely agree with Dr. Mosher that dentists had for a long time been familiar with the relation between narrow alveoli with crowded teeth and septal deformities. He had found a wide difference of opinion among dentists concerning this subject. Ortho-dentistry, however, had made rapid strides, and it would be well to form a closer alliance with the dental profession.

(To be continued.)

Abstracts.

MOUTH.

Scheier, M. (Berlin).—*Diseases of the Mouth in Glass-blowers.* “Arch. für Laryngol,” vol. xix, Part III.

The writer's observations are based upon the examination of about 300 glass-blowers. He found that many of them suffered from an affection of the parotid gland, due to the entry of air into the duct of Stenson. In the affected persons, so soon as the cheeks were distended in the act of blowing air passed into the duct, and a marked swelling appeared immediately in front of the ear. This swelling conveyed to the touch the sensation of subcutaneous emphysema, and yielded a high tympanic percussion note. The swelling did not tend to subside of itself, but could easily be made to disappear on pressure. The orifice of the parotid duct was usually more or less dilated, and in some cases a fairly thick sound could be passed some distance along it. The writer found this affection in about 6 per cent. of the glass-blowers examined, but he believes it to be much more frequent in some factories where large bottles are made. The condition only occurs in those who blow with distended cheeks, and not in those who keep the cheeks drawn in during the process. At the beginning of the affection there are much pain and discomfort, but the workers almost always become accustomed to the condition and are seldom thereby incapacitated for work.

Those who blow with the cheeks distended are also very liable to another affection. The mucosa of the inner surface of the cheeks shows whitish-grey plaques, which sometimes much resemble patches produced by the cautery, and at others suggest the mucous patches of secondary syphilis. These plaques are not as a rule raised above the surface, and the surrounding mucosa is not reddened. Histological examination shows thickening and cornification of the epithelium. Ulceration is never observed, nor is transition to carcinoma. The patches are found in the hollows of the cheeks alone, and are due to epithelial proliferation, the result of the irritation produced by repeated stretching of the mucosa. Loosening and maceration are aided by the increased salivation always present in glass-blowers.

Very characteristic of glass-blowers are the cheeks themselves, which, as a result of stretching and atrophy of the musculature, become thin and lax, so that in the position of rest the skin lies in deep folds.

An unfortunate feature of this occupation is the ease with which syphilis spreads among the workers. In many instances the process of

bottle-making entails the transference of the blow-pipe from one worker to another, and even where this is not required and each employee has his own blow-pipe, exchange for that of a fellow frequently occurs; moreover, inoculation is facilitated by the cracks and fissures so often present on the lips of glass-blowers. Cases have been recorded in which the disease was thus communicated by a single workman to as many as a dozen others. Tuberculosis may be transferred in the same manner. The author discusses the various means which have been suggested to obviate such dangers, and believes that they are to be best overcome by the use of mechanically compressed air for blowing purposes.

Thomas Guthrie.

ACCESSORY SINUSES.

Gavello, G.—*Surgical Treatment of Maxillary Sinusitis by the Nasal Route.*
“Bolle. d’Malatt. del. Orrechio, etc.,” November, 1906.

Having found Réthi and Claoué’s methods insufficient, he obtained good results by a modification of them. He found the technique simplified by the use of a dilating trocar of his invention, which he recommends strongly to his confreres.

V. Grazzi.

LARYNX.

Avellis, G. (Frankfort-on-Maine).—*Laryngeal Air-sacs in Man.* “Arch. für Laryngol.,” vol. xix, Part III.

The writer passes in review the cases hitherto reported of laryngeal air-sac in man, and adds to their number one case which recently came under his own observation. The patient was a little girl, aged four, whose voice had for a long time been somewhat muffled, although she was otherwise in perfect health. Laryngoscopic examination was very difficult, but a swelling was seen in the ventricle on the right side. Externally no abnormality could be detected except on forced (*quetschend*) screaming or shouting, or on violent coughing, when a swelling slowly appeared on the neck in the neighbourhood of the larynx, at first on the right side and then on the left. These swellings extended from the margin of the lower jaw almost to the clavicle on either side; they were soft and elastic, and yielded a tympanitic note on percussion. They gradually subsided after the cessation of the forced phonation. Operation was not considered advisable.

So far as the writer is aware, but little attention has been devoted to this subject since the work of E. Meyer, in the year 1902, on the laryngeal air-sacs of apes. The large size of these structures in some of the anthropoid apes (orang and gorilla) makes the question of their significance an interesting one. In the howling monkey alone are the sacs, by their persistent distension and by the partial calcification of their walls, adapted for giving resonance to the voice. In all the other monkeys and apes the sacs possess soft walls, and are almost always in a state of collapse. The writer, therefore, believes that these structures should be regarded as vestigial in all those of the Primates in which they are found, with the single exception of the howler. The further consideration that they are occasionally, though very rarely, found in man may be sufficient

to justify the conclusion that the common ancestor of man and the anthropoid apes possessed these structures in a highly developed form, and made use of them for adding resonance to the voice.

Thomas Guthrie.

EAR.

Langworthy, H. Glover (Dubuque, Iowa).—*A Case of Hysterical Mastoid Tenderness and Pain without Functional Disturbance.* “Arch. of Otol.”, vol. xxxv, No. 5.

There was, in this case, no appearance of disease, and the functional tests indicated a normal condition. The neurologist observed very slight nystagmus, a hyperesthetic area over the right mastoid, very slight spasm of the right sterno-mastoid muscle. Under psycho-therapeutical treatment the pain and tenderness entirely disappeared. A diagnosis was made on the strength of the predominance of subjective over objective symptoms, the presence of a very slight contracture, the history of nervousness in the patient and the family.

Dundas Grant.

Boenninghaus (Breslau).—*The Theory of Sound-conduction.* “Arch. of Otol.”, vol. xxxv, No. 5.

The author discusses the question as to whether the vibrations of the basilar fibres in the cochlea are set going by the movements of the water column in the labyrinth in mass or molecular movement, his opinion being in favour of the latter, and, in support of it, he quotes the fact that the stapes of the whale is physiologically immobile, in spite of which the animal must probably have extremely delicate hearing, as its sense of smell and touch, which are so highly developed in the fishes, are absent, and the eye in the water can only be of very slight value. He explains the prolonged bone-conduction in obstructions of the sound-conducting apparatus by the whole of the vibrations being transmitted as molecular movement, whereas, when the sound-conducting apparatus is not abnormally tense some of this is lost in setting the conducting apparatus into motion.

Dundas Grant.

Meierhof, E. L.—*Prognosis of Mastoid Operations in Diabetic Cases.* “Arch. of Otol.”, vol. xxxvi, Nos. 1 and 2.

In view of the tendency in any diabetic for acute purulent inflammation of the middle ear to assume a destructive course in the mastoid, the writer advises opening the bone if there is no marked decrease in the secretion of pus after a few days, without waiting for the classical symptoms. He believes that in the future the results of mastoid operations in diabetics will be increasingly satisfactory, even with the presence of a high percentage of sugar in the urine. He quotes the experience of Buch, Eulenstein, Wolf, Schwabach, Moos, Koerner, Muck, Friedrich, Barth, McCuen Smith and others in support of his views.

Dundas Grant.

Schoenborn, S. (Heidelberg).—*Acute Cerebral Polyneuritis with Involvement of the Acoustic Nerve.* “Münch. med. Woch.”, May 14, 1907.

Eight days after exposure to cold, the patient, aged twenty-two, experienced a feeling of vertigo and nausea and soon afterwards immobility of the left side of the face and indistinctness of vision with,

possibly, diplopia on looking to the left. A few days later he observed increasing dulness of hearing of the left ear. The patient could not specify the exact direction of the vertigo. There was no ataxy. When walking with closed eyes he tended to fall to the left side and to walk to the left. Electrical tests showed diminished faradic and increased galvanic reaction of the left facial muscles. Taste was slightly diminished on the front of the left side of the tongue. There was somewhat greater mobility of the posterior part of the left than of the right tympanic membrane under Lieyil, but otherwise no objective change. The tuning-fork on the vertex was heard better in the good ear. On the left side whispers were heard at the distance of between 0·1 and 0·3 meters and "acht-und-achtzig" better than "sieben-und-siebzig." The lower limit of audition was 24 double vibrations and therefore contracted. The upper one was at C³ for tuning-forks and at 17,000 vibrations for Galton's whistle. Rinne was positive but somewhat shortened. Improvement took place in a few days. The lesion was considered to be in the nerve-trunks rather than in the nuclei or the brain, and was inflammatory rather than apoplectic.

Dundas Grant.

Takabatake (Nagasaki, Japan).—*The Changes in the Eye-grounds in Otitic Diseases of the Brain, the Cerebral Membranes, and the Sinuses.* “Arch. of Otol.,” vol. xxxv, No. 5.

The author finds the changes in the fundus oculi in otitic suppurations from the skull are more frequently absent than present, in fact, present in only sixteen out of fifty-four cases. With a single intra-cranial complication they were present in six out of thirty-seven cases, and in a combination in ten out of fourteen. As a rule, after evacuation of the pus from the cavity there is a distinct improvement of the optic nerve infection. The more marked development of the changes in the fundus of one side does not prove that the original disease is confined to that side or is more marked on it. As regards prognosis, the changes in the optic nerves appear to furnish no aid.

Dundas Grant.

Knapp, A.—*Primary Cavernous Sinus Thrombosis Secondary to Osteomyelitis of the Petrous Pyramid.* “Arch. of Otol.,” vol. xxxv, No. 5.

Acute suppurative otitis occurred in an Italian, aged thirty, who suffered from diabetes and ozæna. The left ear was the one affected; paracentesis was performed on two occasions; headache followed on the opposite (the right) half of the head; the right eye began to protrude; the right ear became affected; the left eye began to protrude about ten days later; coma set in and death followed. *Post-mortem* examination revealed an osteo-myelitis of the tip of the petrous bone without any distinct pus but with the presence of granulations and disintegration of bone. The purulent thrombus in the cavernous sinus was secondary to the osteo-myelitic focus at the petrous apex. The condition then extended to the cavernous sinus of the other side, causing exophthalmos, and backward to the jugular bulb and sigmoid sinus of the same side. Symptoms of pyæmia were absent and there was no meningitis. In spite of interference with the intra-orbital circulation there were no changes in the fundus oculi, a point which the author emphasises in agreement with Jansen's experience. The rapid involvement of the temporal bone is explained by the diabetic condition of the patient.

Dundas Grant.

Lange, W.—*An Examination of the Auditory Apparatus in a Case Dying from Fracture of the Basis Crani.* “Zeitsch. f. Ohrenheilk.,” vol. liii, Part I, 1907.

The cause of the fracture was through the petrous appearing on the anterior surface in a line in front of and parallel to its superior border. Examination of a series of sections showed in the external auditory canal many fissures running upwards and inwards, its lumen filled with blood-clot and epidermis scales. The membrane torn irregularly in its superior part. Malleus and incus dislocated outwards, but the stapes was intact, as also membrane of the round window. The middle-ear cavity filled with blood-clot and inflammatory exudate. The labyrinth capsule was quite intact, and although the preparations did not show the condition of the membranous labyrinth very well neither in the peri- or endolymphatic spaces was there any free blood. The auditory nerve, cochlear and vestibular branches torn through at the bottom of the internal auditory meatus, the interstices of the torn nerve-bundles being filled with blood-corpuscles and round cells. In the region of the tear the nerve-bundles showed no change when compared with those in the intact part of the nerve; somewhat centrally from this was a circumscribed collection of corpora amyacea.

The facial nerve was quite intact, due probably to its being more resistant than the auditory.

The writer regards the presence of the “amyaceous bodies” as the result of some *post-mortem* injury.

Excellent plates of the preparations are given. *Lindley Sewell.*

Schwartz, H. (Halle).—*Death from Meningitis following Unsuccessful Attempts to Remove a Stone from the Ear.* “Arch. f. Ohrenheilk.,” Bd. 70, Heft 1 and 2, p. 110.

The patient was a healthy child, aged five, who, when playing on the sands, slipped a small pebble into the left ear. A medical man made several attempts at extraction but ultimately sent the child to hospital. On examination Schwartz found the meatus red and swollen, with foetid pus lying in its depths. No perforation-sound could be heard on inflation. Attempts made to dislodge the foreign body by syringing induced violent pain in the ear. After some days the pinna was displaced forward, under an anaesthetic, and the stone removed. The premonitory symptoms of meningitis set in immediately after the operation and the child died ten days later. At the *post-mortem* the cause of death was found to be purulent meningitis. In the affected ear the membrana tympani was torn, the mucous lining of the tympanum inflamed and the membrane of the round window quite destroyed. The cochlea, vestibule, and semicircular canals contained a purulent exudation, and the auditory nerve trunk was infiltrated and invested with pus. Periosteitis and osteitis around the fenestra rotunda were also present. Schwartz ascribes the fatal injury to the vain efforts which had been made to remove the pebble by instruments before he saw the case, and defends his own delay in operating on the ground that no acute or threatening symptoms were discoverable when first the child was brought to him. At the same time he registers a resolution not to wait for such grave signs in the future but to operate at once as soon as pain in the ear is experienced.

Dan McKenzie.

THERAPEUTICS.

Grünberg, Karl.—*On the Value of the Internal Administration of Potassium Iodide in cases of Tuberculosis of the Upper Air-passages.* “Zeitsch. f. Ohrenheilk.”, vol. liii, Part IV.

The writer states that in some cases of tuberculosis of the mucous membrane of the upper air-passages beneficial results are obtained by the internal administration of potassium iodide either with or without local treatment of the lesion. In the cases on which he bases his opinion the diagnosis was verified by microscopical examination of portions of tissue removed.

Extensive tuberculous ulceration with widespread infiltration was not found amenable to the treatment, the best results being obtained in circumscribed tumour-formations.

The potassium iodide probably produces a leucocytosis, especially of mononuclear leucocytes, which give rise to an anti-bacterial substance. Gorescu has shown experimentally that small doses of potassium iodide promote a quick absorption of “tubercles” produced by inoculation in guinea-pigs.

The author's conclusions are:

(1) Primary tuberculous lesions of the upper air-passages heal in many cases through the internal administration of potassium with or without local treatment.

(2) But in so much as such cases occasionally heal spontaneously the cure cannot with certainty be attributed to the potassium iodide, nevertheless, cases which have resisted other methods have often been found to recover under this treatment.

(3) In any case potassium iodide cannot be regarded as an aid to diagnosis between tuberculous and syphilitic lesions.

A short account of six cases is given, which bear out the above statements.

Lindley Sewell.

REVIEWS.

Malattie dell'Orecchio del Naso e della Gola. By Dr. TOMMASO MANCIOLI. Pp. 540, with 98 woodcuts. Milan: Ulrico Hoepli, 1907.

This work is issued as one of a set of scientific manuals (“Manueli Hoepli”) by the firm of that name. It is a very clever and, with one exception a very complete compendium of diseases of the ear, throat, and nose, for the use of students and practitioners who may require such a work of ready reference. The section on diseases of the ear is perhaps the best, as one might expect from the other writings of one of the leading Roman aurists. The anatomy is given with great clearness, though, of course, briefly, while the account of the diseases and their treatment, especially those of the middle ear and antrum, is an example of succinct thoroughness of which one would scarcely think the language capable in view of the leisurely prolixity of the majority of Italian writers.

One is reminded of the different position dental surgery has long held on the Continent in relation to the medical profession by the inclusion in the section on diseases of the nose and accessory sinuses of a chapter

headed "Odontalgia," with paragraphs on diseases of the dentine, tooth-pulp, etc. ; and one is not surprised to find the author unhesitatingly affirming that dental disease is the most frequent cause of maxillary empyema. Where there is so much that is good it seems invidious to find fault. One cannot, however, help noticing that the book is weakest in the laryngeal section, and especially in the chapter on tumours of the larynx. One can scarcely believe that the statement, "the prognosis of malignant tumours of the larynx is always unfavourable," represents the sum of the author's acquaintance with the modern treatment and literature of these growths. It is also in this chapter that the author's powers of compression appear to fail him. While a great deal of space is devoted to rare and even doubtful functional neuroses, and to over-full descriptions of tracheotomy and intubation, the reader is referred to another work for an account of such operations as thyrotomy and laryngotomy. On the whole, however, the book is likely to prove a valuable addition to Hoepli's series, but we venture to suggest that the omissions above noted should be supplied in a future edition, even if the majority of the ninety-eight woodcuts, more suitable to the catalogue of an instrument-maker, have to be sacrificed.

Voice Production in Singing and Speaking. By WESTLEY MILLS, M.A.,
M.D., F.R.C.S. J. Curwen & Sons, Ltd., 24, Berners Street, W.

This book is welcome. There have been many books and pamphlets published in the hope of attracting the attention of those of the general public interested in voice production—publications which can do but two things: mystify the beginner anxious to learn, and display, to those having some knowledge of vocal art and science, the hopeless ignorance of the writers. In such circumstances this excellent work by Dr. Mills is indeed welcome.

He is no mere singing-master, who, having obtained successful results from the use of one or two exercises, while wholly ignorant of the work which has been done by scientific investigators, offers us a jerry-built theory of the physiological functions of the vocal organs; he is not writing from narrow experience, and filling out his book with extracts from the works of others, either as ignorant as himself or whom he has not taken the trouble to understand; here are no long strings of technical words and phrases used in manner entirely unscientific, and with the sole apparent purpose of persuading the ignorant of the writer's wisdom; neither is this a book by one who thinks a mere knowledge of the physiological functions of the vocal organs entitles him to give directions for the proper training of them. No, here is a book written by one who obviously knows his subject theoretically and practically.

The value of the book, moreover, is much enhanced by the writer's love and enthusiasm for the vocalist's art, and by his belief in the value of careful and patient study.

To some it may seem that the book is too long, and enters unnecessarily into detail; others may think that many of the admirable drawings and photographs might have been omitted. But consideration shows that these minute descriptions aid Dr. Mills in his object of impressing upon the student the extreme delicacy of the mechanism of the vocal organs, and the consequent necessity of the utmost care in their training and use. Over and over again does he insist on the importance of training the voice slowly; on the harm done by haste and the consequent overwork.

It would be well if every teacher and student read and followed the advise of Dr. Mills on this most important point.

The methods of breathing advocated by different teachers are fully and most reasonably discussed, and admirable conclusions reached. But it could be wished, for the sake of students, that more definite exercises for breathing had been given.

The temperate and reasonable character of Dr. Mills' teaching is very well seen in the chapters devoted to the consideration of the much discussed question of *registers*. The opinions of well-known authorities are freely quoted and compared, and used to uphold Dr. Mills' practical experience.

It is to be regretted, however, that in the chapters treating of the vowels and consonants there are serious mistakes. For a reader, having a fair elementary knowledge of phonetics, might be inclined to condemn the whole book as unworthy of consideration, unless he had enough general knowledge of voice production to appreciate the value of the rest of the work.

It seems probable that Dr. Mills has given much more time to the study and teaching of singing than of speaking, and it is to be hoped that he will hereafter give the same attention to speech as to song; for he will then produce a work as useful to speakers as the one under consideration must prove to singers. The stronger side of his work, moreover, will gain no less than what is now the weaker; for, in the book before us, while insisting on the need of clear enunciation by singers, his teaching is hampered by an imperfect knowledge of phonetics.

It seems strange that anyone with a rudimentary knowledge of phonetics can give a single tongue position for the diphthong *i* (as in *mine*), as described on p. 220. Still more astonishing, perhaps, is the paragraph beginning on p. 230 concerning the consonant *r*. Possibly the inhabitants of Montreal "use only the guttural *r*"; but to say that "most persons in ordinary speech" do so is ludicrous. There are other inaccuracies of this character; but the instances given are sufficient to show that Dr. Mills, like many another earnest student, has still something to learn.

While it is hard enough to understand mistakes of the character mentioned above, it is almost inconceivable that a man of Dr. Mills' musical ear and experience should limit the compass of the voice in ordinary speech as he does upon page 234. Perhaps, however, an Englishman does not understand the limitations of a Canadian's speech melody. It seems well, nevertheless, to warn the English reader of this book against the speaking compass given, which is at least a quarter of that to which we are accustomed.

These errors are the more remarkable since the author shows so sound a knowledge of certain elements of phonetics as to give excellent advice to composers of vocal music, who generally seem to be quite ignorant of the difficulties of singing certain vowels at certain pitches.

Dr. Mills does well to direct attention to the need for careful training of the ear; and his description of that organ may be studied with interest and advantage to the student. Still more valuable are the general directions for the care of the vocal organs. They are so plainly reasonable and easily followed that the student will have no difficulty in proving their efficiency.

It has been a pleasure to read this book. It is a further pleasure and a privilege to have this opportunity of recommending it as quite one of the best treating of the subject.

THE

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY.

Original Articles are accepted by the Editors of this Journal on the condition that they have not previously been published elsewhere.

Twenty-five reprints are allowed each author. If more are required it is requested that this be stated when the article is first forwarded to this Journal. Such extra reprints will be charged to the author.

Editorial Communications are to be addressed to "Editors of JOURNAL OF LARYNGOLOGY, care of Messrs. Adlard and Son, Bartholomew Close, E.C."

TRACHEO-BRONCHOSCOPY: REPORTS OF CASES.

By CHEVALIER JACKSON, M.D.,
Pittsburgh, Pa., U.S.A.

UPPER bronchoscopy with the aid of the slide speculum is, in most instances, easy under general anaesthesia. The bronchoscope may be inserted at the first inspiratory movement, not only without difficulty, but without the slightest injury to the delicate mechanism of the larynx.

Under local anaesthesia upper bronchoscopy is, in a few patients, equally easy. In the majority of instances, however, the resistance and rigidity of the muscles is such that it is by no means easy fully to expose the laryngeal aperture for the insertion of the bronchoscope. In some of my work I have encountered old cicatricial larynges where the cartilages of the larynx and trachea had been destroyed by purulent inflammation, and where the tissues surrounding the trachea and larynx were bound down and rigid with cicatricial tissue. In these cases, especially as there is no inspiratory widening of the glottic chink, it is very difficult to pass the bronchoscope under local anaesthesia by any of the methods heretofore in use. To overcome these difficulties I have added an extra handle to the slide speculum and a bevelled end to the bronchoscope.

The handle A, B (Fig. 1), affords a powerful leverage with which the base of the tongue and the tissues about the hyoid bone may be

easily pulled forward out of the way and a good view of the larynx obtained under local anaesthesia (Fig. 2). Endo-laryngeal operative work may be done, and bronchoscopes may be passed by the aid of this instrument. One of its chief advantages is that no

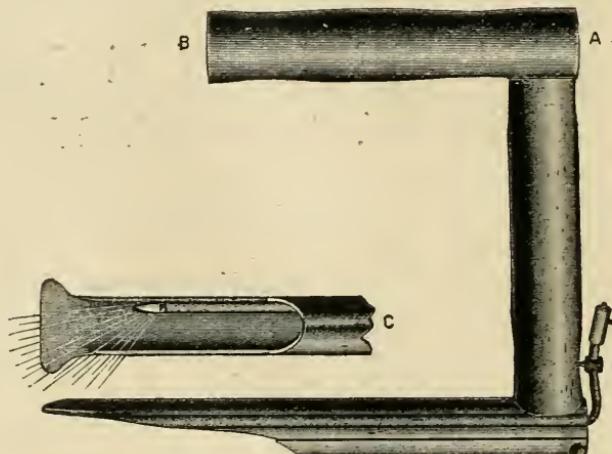


FIG. 1.—Separable speculum for direct laryngoscopy, and for passing bronchoscopes.

gag need be inserted until after the bronchoscope has passed the glottis. Gagging the mouth widely open hinders the drawing anteriorly of the tissues about the hyoid bone and the base of the tongue.

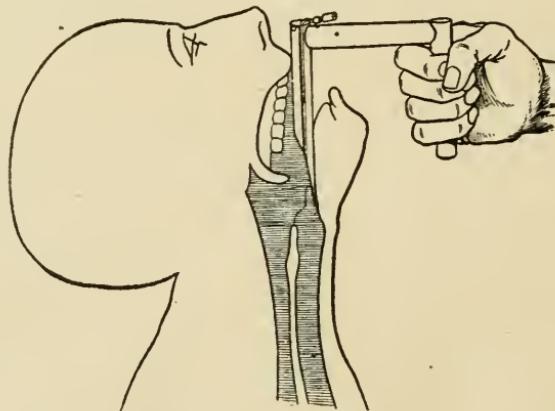


FIG. 2.—Schema showing position of separable speculum for direct laryngoscopy and for the passing of bronchoscopes.

To facilitate the passage of the tube in upper bronchoscopy I have been using recently a new bronchoscope (Fig. 3), the distal end of which is cut off at an angle. The instrument otherwise is the same as those I have used for some years. The edge is thickened

and rounded in the same manner to prevent injury to the mucosa. In use the long end is directed forward toward the anterior commissure, through which it can be passed with great ease. There is no need of waiting for an inspiratory movement, or for the subsidence of the glottic spasm. With this tube it is not necessary to expose the anterior commissure with the slide speculum, as the point can be started between the posterior ends of the cords. There is no tendency for the tube mouth to catch over the arytenoids instead of passing anteriorly to them. The slanting extremity has also the advantage that the point can be used in the

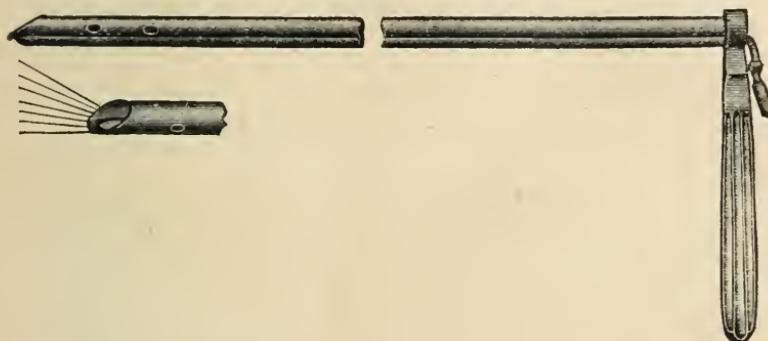


FIG. 3.—Bronchoscope with bevelled extremity to facilitate introduction.

bronchi as a retractor to draw aside spurs and orifices, thus greatly facilitating exploration.

CASE 1.—Piece of Wood in Bronchus four days; removed by Lower Bronchoscopy.—Aged five, referred to me by Dr. Adolph Lewin with the history of having aspirated the wooden plug out of a bamboo whistle four days before.

Dr. Russell H. Boggs reported that he was certain the foreign body was present from a physical examination of the chest, but that it did not show radiographically because of the insufficient density of a small piece of wood. The child was so cyanotic when brought upon the operating table at the Western Pennsylvania Hospital that a general anæsthetic was out of the question. In fact, the question of a preliminary tracheotomy arose in the author's mind, and only his confidence in his preparedness instantly to stab the trachea induced an attempt at upper bronchoscopy. The head was held in the Boyce position by Dr. J. C. Markle. Upon attempting to introduce a 7 mm. bronchoscope, which proved to be too large, the breathing ceased. The tracheotomy was promptly done, and the 5 mm. bronchoscope was introduced. The bit of wood was found in the right bronchus and removed.

The tracheal wound was packed until it healed from the bottom. At the end of a week Dr. H. E. Deers reported the wound healed, and the child's condition perfect.

Remarks.—This case points a very valuable lesson. When a foreign body case comes with dyspnœa no attempt should be made even to examine the throat without making preparations for a tracheotomy. These preparations need be but a sharp knife and a haemostat for a dilator, but these, at least, must be ready at hand for instant use, separate from all other instruments. If a leisurely tracheotomy with careful haemostasis is preferred, it certainly would be better to do the tracheotomy preliminary under infiltration anaesthesia.

CASE 2.—Safety-pin in Trachea ; removed by Upper Bronchoscopy under Local Anæsthesia.—Infant, aged twelve months, was brought to me at a public clinic in the Harper Hospital, Detroit, with a history of having swallowed a closed safety-pin one month before. The stools had been carefully watched, and the pin had not passed. There were no pulmonary symptoms whatever, and the physical examination of the chest was negative. Under chloroform anaesthesia I explored the oesophagus and stomach thoroughly, and finding no signs of the pin further examination was deferred until after Dr. P. M. Hickey made two radiographs (Fig. 4), which showed the pin in the trachea. With the assistance of Drs. Hickey, Shrury, and Minor, I was able, under local anaesthesia, to remove the pin (Fig. 5) by upper tracheoscopy in a rather unusual way.

The larynx of an infant will not admit a 7 mm. tube, which was the smallest that I had with me in Detroit. I found, however, that the mouth of this bronchoscope would enter the upper orifice of the larynx, fix the arytenoids and hold the glottis widely open. The view thus obtained is illustrated in Fig. 6, which shows the cords at the sides, while posteriorly (dorsal decubitus) a large œdematosus swelling could be seen in the trachea below. The pin could not be seen; but I inserted a full-curved hook down into the trachea, and could feel the pin, which I engaged in the hook so securely as to withdraw the pin from the trachea into and through the tube. The child made a complete recovery without phonatory impairment. The radiograph is interesting as demonstrating that the pin was in the trachea. Had it been in the oesophagus at the same time it would have been in the lateral plane.

CASE 3.—Tack in Bronchus four days ; removed by Upper Bronchoscopy under Local Anæsthesia.—Mary M—, aged twelve,

PLATE I.

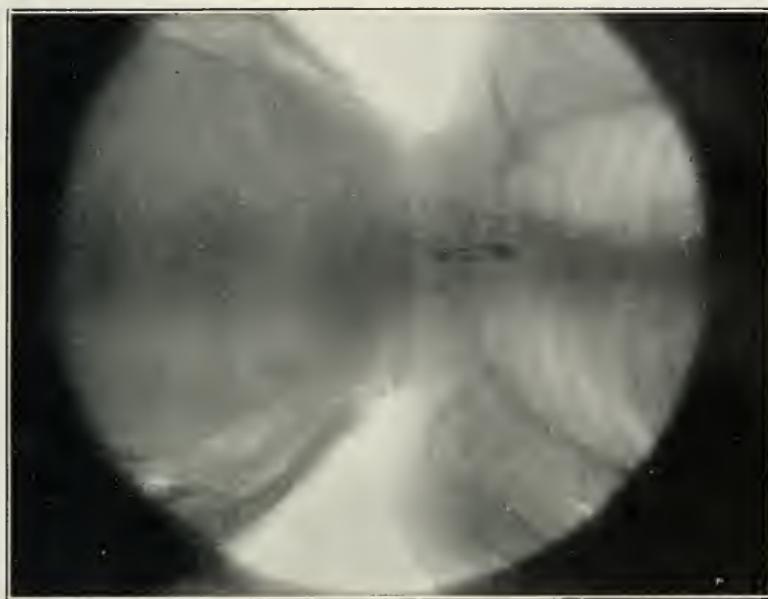


FIG. 4.—SAFETY PIN IN TRACHEA OF INFANT AGED ONE YEAR.

To illustrate a paper by Dr. CHEVALIER JACKSON on "Tracheo-bronchoscopy."

PLATE II.



FIG. 5.



FIG. 6.



FIG. 7.



FIG. 9.

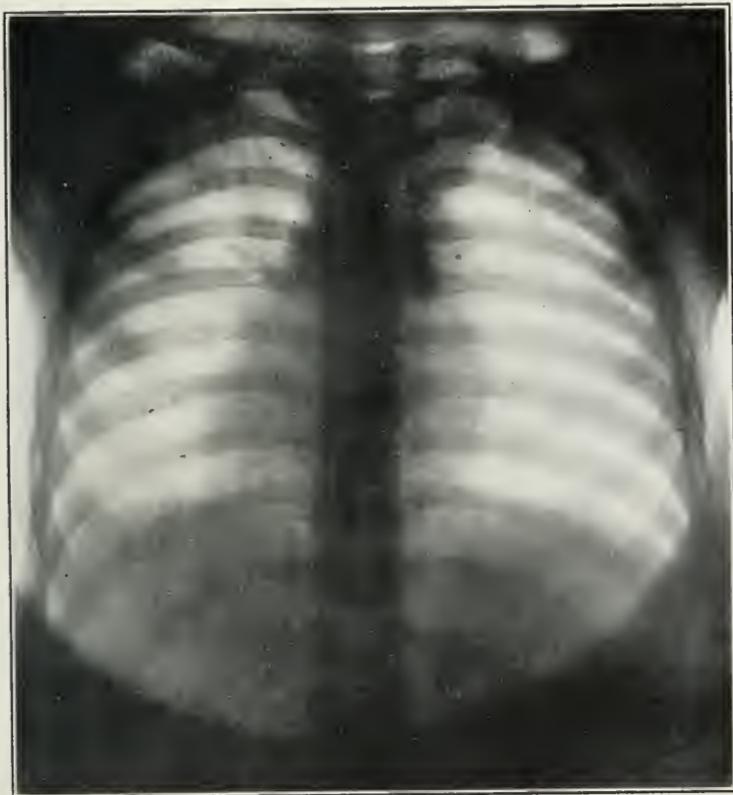


FIG. 8.

To illustrate a paper by Dr. CHEVALIER JACKSON on "Tracheo-bronchoscopy."

came with a history that four days before she had choked on a mouthful of tacks, one of which "went down." She had had paroxysms of coughing with expectoration of pink, frothy mucus streaked with blood.

Under local anaesthesia the 7 mm. bronchoscope was introduced. The trachea and bronchi were found filled with pink, frothy mucus in such large quantities that every landmark was hidden by it. The bronchoscope was removed, and one with a drainage canal in its wall introduced, and the aspirator started. Fully 4 oz. of mucus were pumped out during the examination. A beautifully clear view of the mucosa was obtained. It was seen to be reddened and swollen, and in three places excoriations were visible. The tack (Fig. 7) was found point upward in the left inferior lobe bronchus and removed.

Remarks.—The chief points of interest in this case are the enormous quantity of mucus present, the advantage of the aspiratory bronchoscope in such a case, and the location of the tack in the left inferior lobe bronchus. The excoriations would indicate that the tack had been temporarily in the right side.

CASE 4.—Pebble removed from the Right Bronchus by Upper Bronchoscopy. Martha M——, aged eight years, referred to me by Dr. Andrew Hunter, of McKeesport. One week before, while playing, she had put a pebble into her mouth and started to run, when the pebble "stuck in the throat, so that she could not get it up." A physician, who was called prior to Dr. Hunter, had pushed the pebble downward, as he supposed, into the oesophagus. The patient coughed violently for fifteen minutes, expectorating some bloody mucus, and she was hoarse for a time. Next day she was better, but ever since had had violent paroxysms of coughing excited by motion. No dyspnoea except immediately after coughing, no dysphagia, no fever, no pain until two days before, when it appeared in the centre of the chest. Physical examination showed a sonorous râle heard occasionally all over both sides. There was nothing in the physical signs to aid in locating a foreign body. No dyspnoea.

The patient was radiographed by Dr. George C. Johnson, and the pebble located in the right bronchus (Fig. 8). She was admitted to the Eye and Ear Hospital, and under chloroform anaesthesia I found, by upper bronchoscopy with a 7 mm. tube, a large greyish mass wedged in the right bronchus, the orifice of which was swollen and oedematous above the mass. Forceps

applied to the mass gave back a gritty sensation as the jaws slipped off. While working the respiratory current whistled through one of the lateral openings in the bronchoscope. Finally, a very thin-jawed forceps was introduced so that the flattened blades could be pushed well down on the pebble between the latter and the swollen mucosa. The foreign body was then withdrawn from its firmly fixed position. The tug of the forceps could be felt, by the impulse transmitted to the bronchoscope, to pull the bronchus and trachea upward, so tightly was it embedded in the bronchus.

It was too large to be withdrawn through the bronchoscope so the pebble, tube and forceps were all withdrawn together. When the pebble arrived at the glottis it seemed too large to come through. It was stripped off from the grasp of the forceps and fell back into the trachea. The bronchoscope was again introduced, when it was found that the smaller end of the pebble was in the orifice of the left bronchus, into which, however, it was too large entirely to enter. The orifice of the right bronchus could be seen partially closed by swollen mucosa, being diminished to not more than half its normal diameter. The pebble was again seized and this time was pulled through the glottis, in which it was such a tight fit that considerable force was required.

The child was discharged well as soon as the effects of the chloroform had disappeared.

The pebble (Fig. 9) measured $7 \times 9 \times 17$ mm., was dark brown in colour, of rounded outline, and of very smooth surface. *In situ*, its greatest dimension corresponded to the axis of the bronchus.

Remarks.—This case illustrates one of the dangers of the crude old method of pushing down foreign bodies. The first attendant had felt the pebble with his finger, but failing to get it up he pushed it down, believing that it would pass safely through the gastro-intestinal tract. Probably it was in the gloss-o-epiglottic fossa. Certain it is that he pushed it through the glottis as if it were an intubation tube. Once through the glottis, the negative pressure of the violent inspiratory effort following the obstruction to breathing during the manipulation produced a powerful negative pressure, which, exerted upon so large, rounded, smooth and close-fitting a body, together with its density, drove the pebble like a projectile into the right bronchus.

In no other way is it possible to account for the tight impaction of the pebble in its position. Recent mucosal swelling would not

do it, and the sojourn of the body was too short to permit of sufficient hyperplasia. The size of the body indicated the elasticity of the bronchi. The diameter of the bronchi is changing every moment, but at the maximum normal dilatation the average diameter of the right main bronchus of children seven years of age is 7 mm. Yet here was a body whose cross section is 7 by 9 mm. which entered the bronchus for a distance of about 2 cm.

This case also illustrates the necessity of having the lateral openings in the bronchoscope. When the tube mouth entered the right bronchus, the latter being occluded by the pebble, the patient would have been getting no air and the work could not have proceeded had not the tube had lateral openings, one of which corresponded to the orifice of the right bronchus. Had it not exactly corresponded the result would have been the same, as the bronchoscope used did not, and should not, fit tightly in the trachea, so that there was abundant room for air to pass up the trachea until a lateral opening was reached.

Including the cases herewith recorded, the author has done nine bronchoscopies for foreign bodies in the bronchi. Of these, the foreign body was removed in six, not removed in three. Seven were upper and two were lower bronchoscopies. Of tracheoscopies for foreign bodies the author has had seven. Of these, three were dyspnœic on admission and required tracheotomy, and four not dyspnœic were upper tracheoscopies.

A STUDY OF THIRTY-SIX SUCCESSIVE CASES OF OPTIC NEURITIS. NASAL ACCESSORY SINUS DISEASE PRESENT TWENTY-SIX TIMES.

TREATMENT OF THE SINUSES FOLLOWED BY IMPROVEMENT OF THE OCULAR CONDITION IN FIFTEEN CASES, INCLUDING THEREIN THREE BILATERAL CASES RESTORED TO NORMAL.

BY HENRY MANNING FISH, M.D.,
Chicago.

(Continued from page 536.)

CASE 10.—*Bilateral Retro-ocular Neuritis due to Chronic Empyema Secondary to probable Sarcoma of the Posterior Sinuses; Amaurosis. Improvement in Vision after Treatment of the Sinuses.*

Mrs. C—, aged sixty, referred to me in May, 1906. Patient

was a stout, healthy woman, mother of a large family. History negative as to syphilis. Gradual loss of vision in each eye. She had visited several well-known eye clinics in New York City ; she mentioned the name of an eminent professor of ophthalmology and rhinology who had examined her eyes and her nose ; she had been referred to a clinic for nervous diseases, where she was seen by an assistant, to whom the writer had often spoken about optic neuritis due to sinus disease, and who, on hearing the familiar history of pain in the head, nasal discharge, etc., suggested sinusitis, and that the writer be asked to see the case, but the idea was ridiculed. The patient stated that all of the doctors who had examined her said her trouble was due to a cerebral lesion or "brain disease."

Present state.—No œdema or redness of the lids or orbital region ; no ptosis ; no exophthalmos ; excursions reduced in all directions ; the eyes do not deviate but are nearly fixed in the parallel position. Media clear ; retro-ocular neuritis, the right papilla normal in appearance, the left partially atrophic. Left eye amaurotic for months ; right eye, mere light perception. History of severe pains in various parts of the head, at times very severe, at others dull in character ; frequent dizziness ; yellowish nasal discharge, now slight, now abundant, and from time to time a discharge of "corruption" from the back part of the nose. Nasal examination showed the lower turbinates œdematos, the middle turbinates also swollen and unhealthy in appearance. No pathological secretion in evidence and no necrotic spots detected. The posterior nares could not be examined owing to the enlarged middle turbinates lying in close apposition to the septum. The following day a thick, yellowish secretion was very evident in the right middle meatus. The patient was told that sinus disease was probably the cause of the blindness and an operation was advised. This was declined.

During a week or so the patient was seen almost daily. She said several different physicians, some of them ophthalmologists, were called in the meantime to examine her, and the trouble had always been attributed to a cerebral lesion. Operation was urged but persistently refused, because "they all say I have a brain disease—you are the only one who says it is a nasal disease." The patient was told that if it was a brain lesion there was no hope, but if sinus disease was the cause an operation might restore her vision, and with that the case was dismissed. In the meantime the right eye had lost all light perception. About a week later the writer was again sent for, as they had concluded to have the opera-

tion. Amaurosis of the right eye still present. The following day the right middle turbinate was removed, disclosing broken-down tissue and a necrotic condition of the posterior or ethmoidal sinuses. What appeared to be a large fibroid polyp could be seen in the upper posterior part, next to the septum, but the snare could not be placed around it, and its removal was postponed. Forty-eight hours later the eye had light perception, the condition improving daily, movements, counting fingers at the end of a week. Another attempt was then made to remove the polyp, which at that time occupied the entire space previously curetted away—but this proved to be a part of the septum—by means of a probe introduced into the left nostril, and by looking into the right; the supposed fibroid polyp was seen to be the posterior or bony septum; the entire mass was freely movable. Examination showed extensive broken-down tissue, and a diagnosis of probable sarcoma was made. Unfortunately no instruments suitable for cutting out a specimen had been taken, hence a microscopic examination was not made. An unfavourable prognosis was given, and two days later the writer was called away, and the patient was not seen again.

CASE 11.—Bilateral Hæmorrhagic Neuro-retinitis, Optic Atrophy, nearly complete Amaurosis, temporary Ocular Muscular Involvement, due to a Polysinusitis secondary to a probable Sarcoma.

Mrs. X—, American, aged thirty-two, seen in June, 1905. Following confinement, about a year before, she complained of dull pains in the head, and the second or third week the first ocular symptom appeared—outward deviation of the left (?) eye. A short time afterwards the vision became reduced in each eye, owing to a hæmorrhagic neuro-retinitis (as the writer was informed by the ophthalmologist who then attended her), the condition terminating in bilateral optic atrophy with mere light perception. As the patient complained of frequent severe pain, especially about the right orbital region, an attempt was made to relieve it by treating a possible sinus empyema, and later the anterior end of the enlarged middle turbinate was removed. Soon afterwards the space formerly occupied by the part amputated was seen to be filled in by new soft tissue, which was easily removed with a curette. When this space again filled up with the same material, that appeared to crowd down from the upper nares, the patient's family was told that a sarcoma was probably the cause of the trouble, and it was proposed to obtain a specimen for microscopic examination, but this was declined, as "no possible benefit could

obtain by confirming the diagnosis." It was learned from the family that the patient had recently lost some forty pounds. The patient was then dismissed. Several weeks later the husband returned and requested a radical operation on account of the increased intensity of the pain. The seriousness of the situation was explained, and after due consultation with the family the operation was undertaken in July. After removal of the middle turbinate it was found that the upper bony septum was destroyed; the whole upper nares was one mass of broken-down tissue. This was carefully removed with the forceps and a downward sweep of the curette, and light tampons were inserted on account of the haemorrhage. During an attempt to open the right frontal sinus, which proved to be wanting, the patient had to be taken over the end of the table and artificial respiration resorted to, and this resulted in the loss of the specimens. Later it was telephoned from the hospital that the patient was bleeding, although tight plugs had been inserted in each nostril. Signs of cerebral haemorrhage soon appeared, and the patient died on the second day. An autopsy was urgently requested, but refused, but after the removal of the tampons there was found an extensive necrosis of the roof of the nostril; it readily broke down with a probe. . . .

The pathogenesis in these two cases (10 and 11) was doubtless the same as in a similar case of optic neuritis due to a sarcoma in the sphenoidal sinus, reported by de Lapersonne (*Annales d'Oculist.*, vol. cxxii, p. 182). I quote his conclusions: "According to the clinical history of this patient it is very evident that it was not the tumour itself which was the immediate cause of the neuritis, as in many of these cases of tumour in the cavity. The evolution of the sarcoma was accompanied by an infection of the sinus, whose results were more serious on account of a stopping up of its meatus, being obliterated by the fungus masses of the sarcoma. It was therefore the infection of the sinus which was the immediate cause of the neuritis showing itself through the papillary stasis and sudden loss of vision."

CASE 12.—*Bilateral Optic Neuritis and Muscular Involvement due to Sinus Disease following Influenza; Termination, Amaurosis.*

Mr. K—, aged thirty-eight, was examined October 5, 1906, through the courtesy of Dr. J. Hess. An attack of influenza in 1898 and two or three subsequent relapses were accompanied and followed by attacks of vertigo, headaches over the eyes and in the temporal region, which were intermittent in character, now dull,

now intense, lasting a few minutes or for hours, and later ocular troubles appeared, to wit, epiphora, photophobia, failure of vision, and outward deviation of the right (?) eye, which was operated for external strabismus. In 1902, during another attack of influenza, the patient again suffered from intense pains in the head, epiphora, nasal discharge, and attacks of dizziness. The condition terminated in optic atrophy ; amaurosis in the right eye, and mere light perception in the left. This patient was examined and treated by prominent specialists in Chicago, Milwaukee, New York, and Kansas City. All manner of treatment was used ; the urine and blood were examined ; several skiagraphs were made for a possible brain tumour. Nasal examination, made for the first time, showed a congested condition in each nostril, "mulberry" middle concha, and a clear secretion in each middle meatus. The patient suffers to this day with occasional pains and attacks of vertigo. Treatment was not advised.

CASE 13.—Bilateral Optic Atrophy, Left Amaurosis, due to Chronic Empyema; Aggravation of the Sinus Disease during Influenza; Marked Reduction of Vision of Right Eye; Restoration by Treatment of the Sinuses. Curettage Advised, but Refused; Termination, Vision Reduced to Hand Movements.

Mrs. F—, aged fifty-five, seen in October, 1906, through the courtesy of Dr. H. H. Mather, of Auburn Park. Patient is the mother of eight children, all living and healthy ; no miscarriages. Has suffered for many years with neuralgia and "biliary headaches," sometimes accompanied by vomiting. The left eye has been blind for about seven years. Recent attack of influenza with fever, prostration, severe headache, nasal catarrh, and marked reduction of vision in right eye ; for several days she could not recognise different members of her family.

Present state.—Patient very weak, confined to her bed ; fever, headache, pain in the right orbital region and in the right eye ; yellowish nasal discharge ; bronchitis. No redness or swelling of the lids or orbital tissues. Excursions normal. Right eye injected ; mydriasis (atropin) ; media clear ; no fundal oedema ; no increase in tension. Disc, well outlined, not oedematous, its temporal half atrophic. Vision better than it was a few days previously, as she can now recognise her children. Left eye amaurotic. Nasal examination (each side), middle turbinate very large ; granulation tissue in middle meatus ; abundant yellowish secretion—evidently a chronic empyema, with influenzal exacerbation. The sinuses,

right side, were treated, and the vision rapidly improved; she could read the paper the latter part of the second week. The ocular and orbital pains became less frequent and severe, and soon after ceased entirely. Later, when the patient was able to get up, she called twice at the office (January), at which time she could still read the papers as well as before her recent trouble. It was then discovered that the temporal half of the retina did not functionate, and on careful inquiry it was learned from the family that the patient had for a long time held her head sideways, in the manner characteristic of the patient with temporal hemianopia. Surgical treatment of the right sinuses was urgently advised, but refused, and the patient was not seen again until June 28, when, on calling at her home she reported that the right eye had been blind for two months (vision equalled hand movements), and that the headaches had stopped. Two specialists in another city had been consulted, one of whom attributed the condition to "a growth in her head." The patient was advised to call the next day and submit to an examination of the fundus and sinuses, to see if anything could be done to help the vision. She replied that there was no more nasal discharge, and she appeared to be indifferent as to her condition; she was not seen again.

CASE 14.—Bilateral Primary Glaucoma due to Sinus Disease, following Influenza. Left Eye, Amaurosis; Right Eye, Improvement after Treatment of the Sinuses.

On February 6, 1906, a man, aged forty-eight, came with the diagnosis of glaucoma written on the clinical card that had been given him at one of New York's well-known clinics. The left eye had been amaurotic for a year or so owing to chronic simple glaucoma. There was a history of influenza about two years before, followed by the ocular trouble. The right eye showed no injection; pupil small, owing to eserin, continually used during the past two months; no marked increase in tension; media clear; no changes in the fundus; temporal half of disc atrophic. Vision, $\frac{1}{20}$, two letters missed. Visual field: Nasal half wanting, temporal half marked concentric contraction. Nasal examination showed the left nostril very oedematous; the right nearly occluded by polypi and purulent secretion in the upper part—chronic empyema evident on the most superficial examination. The polypi were removed, and a day or two later the eserin was discontinued, but this, however, was followed at once by an acute glaucomatous attack—congestion, enlarged and irresponsive pupil, shallow

anterior chamber and increased tension, accompanied by ocular distress. These symptoms yielded immediately to eserin. Later, a second attempt to discontinue the use of eserin precipitated a similar attack, which was again controlled by eserin. An unusual amount of haemorrhage for several days, following the removal of the polypi, suggested haemophilia, and it was then learned that the extraction of some teeth a few years before had been followed by severe haemorrhage, sufficiently alarming to call for the attention of a physician for several days. After the parts ceased bleeding an endeavour was made to treat the sinuses, but the presence of a purulent secretion and small polypi in the middle meatus, and an enlarged bulla ethmoidalis showed that surgical interference was necessary. Dr. Muenchenhose, a friend of the patient, was called in consultation and the seriousness of the situation was made known to the patient. The latter was an intelligent man; he had read up on glaucoma and he was satisfied that blindness in the second eye was inevitable; accordingly he was willing to undergo an operation—"I might as well bleed to death as to go blind."

On February 11, operation. The patient was nervous and bled very freely, and it was only with difficulty that I accomplished as much as I did—the removal of the greater part of the middle turbinate and opening of the bulla ethmoidalis. The patient would not submit to curettage of the ethmoidal cells. I do not plug the nostril after similar operations, but this time four tight tampons had to be used, which, however, did not completely control the haemorrhage.

February 12.—Called to the patient's house. He was in bed with fever, pain in the head, prostration, etc., and was very nervous. There had been some haemorrhage. The tampons could not be left in place, damming up a purulent secretion in the cells, so three of them were removed. This was followed by so much bleeding that the nostril was re-plugged.

February 13.—Passed a restless night, fever, pain in the head, and marked visual disturbance. The patient reported that the evening before, on waking after a nap, he had asked his wife why she did not light the gas, when, in fact, it was lit and turned on full. This marked reduction of vision, however, was only temporary; it was probably due to a retro-ocular neuritis secondary to an exacerbation of the sinusitis caused by the tight tamponage. The removal of all tampons, including the deep one inserted the first day, was followed by a steady haemorrhage for more than two hours, when plugging was again resorted to.

February 14.—Patient's general condition and vision improved.

February 15.—All tampons removed; considerable bleeding, but the nostril was not re-plugged. Next few days, purulent and sanguous discharge; three small polypi removed from the upper nares; occasional head pains; gradual improvement. During the second week the upper nares were continually cleansed, the pain ceased, the vision improved to $\frac{1}{0}$. On the discontinuance of eserin there were no symptoms, no injection, the tension remained normal, the pupil normal and active; the visual field improved and the vision continued normal. During a month or more the patient was seen frequently (two or three times a week), and the above improved condition remained the same; none of the old symptoms reappeared.

The condition in the nostril, however, was far from satisfactory, owing to inadequate drainage; the chronic empyema demanded thorough curettage as an aggravation might appear at any time, as, for instance, following a cold, or the secretion becoming thickened or pent up by the formation of granulation tissue or polypi. This aggravation of the sinus trouble could cause a return of the ocular symptoms. This patient was demonstrated before the Ophthalmological Section of the New York Academy of Medicine on April 16, 1906. When seen a day or two before there were no symptoms present, but that evening the pupil was sluggish, the tension somewhat increased, and there was some photophobia.

The patient was told later on that a further surgical interference was necessary, but I did not urge it. He was seen but once or twice more; at the time of the last interview he had returned to the use of eserin.

CASE 15.—Bilateral Secondary Glaucoma due to Nasal Sinus Disease. Right Eye, Iridectomy, Amaurosis, Enucleation. Left Eye, Iridectomy, Vision Improved after Treatment of the Sinuses.

Madam C—, aged fifty-seven, White Street, New Orleans. About four years before this patient suffered acute attacks of what she called "rheumatism." There was a continual dull, heavy, right-sided pain at the root of the nose and in the forehead, with frequent intense aggravations when the pain extended to the entire side of the head; during these attacks she could not bear the slightest touch on the top of her head. Soon afterwards the same pains appeared on the left side. The right eye became very red, "like liver," tears ran freely, the lids and neighbouring parts were greatly swollen, "there was water under the lids and skin of

the cheek, the lids looked like blisters." She was treated by different ophthalmologists, but the vision was soon lost in the right eye and nearly lost in the left when an iridectomy was performed (left eye) on account of secondary glaucoma, as the surgeon, Dr. Salter, since informed the writer. This brought about a very decided improvement in the vision. The right eye was similarly operated "to relieve the pain" (patient's statement), but as the pain continued the amaurotic eye was enucleated.

The pain on the right side, however, continued; "there was frightful pain here," indicating the upper part of the right internal orbital angle, and this neuralgia, especially on the right side, has continued ever since with frequent, at times daily, aggravations, the condition being worse during the cold, wet, winter weather. She has tried all manner of treatment, the last measure recommended being the excision of the Gasserian ganglion. Her vision, now better, now worse, has always been greatly reduced; according to the statement of the patient and members of her family she has been unable to decipher the largest print since her trouble began, some three years and nine months ago. The patient's hearing was also early affected, and one has to shout into the left—the better—ear, in order to be heard. She also had symptoms on the part of her nostril, difficult breathing, "the nose was stopped up and there were many crusts and lumps," and for these symptoms she underwent treatment by a rhinologist. This patient came on account of the intense neuralgia, almost daily attacks, and on account of her sight, which she said was somewhat dimmer than usual.

Present state.—December, 1904.—Left eye: outward appearance and excursions normal; cornea clear; large torn-out iridectomy in the upper outer quarter, pigment spots on the intervening anterior capsule; iris completely bound down by adhesions; fixed opacities in the vitreous; disc partially atrophic; tension normal; vision $\frac{1}{15}$. Nasal examination: Both middle turbinates very large, they do not shrink to cocaine; no trace of a secretion to be seen, even after cocaineisation of the middle meati; the patient said she was not using any wash or spray.

The fronto-nasal canal on each side was probed. The following day there was pus in the right middle meatus and running over the anterior end of the middle turbinate, and in the left nostril there was a purulent secretion coming from the middle meatus and collecting in a mass on the floor of the nostril. The treatment of the sinuses was continued, resulting in a marked relief from the neuralgia, the only form of treatment that had ever been effective.

In addition there was an improvement in the vision, the patient began to again take an interest in her flowers, and said that she could see the red column in a large thermometer on the gallery. The visual improvement continued, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$, and finally $\frac{1}{2}$, and with presbyopic correction (1.75 D.) she read aloud a half column in the newspaper. The pains and photophobia were not entirely relieved, however, and during two or three months the patient was seen occasionally. The removal of the middle turbinate and curettage of the ethmoidal and possibly other cells was frequently urged, but as no assurance was given that a second or third surgical interference would not be necessary, the operation was refused. The vision, however, still equalled $\frac{1}{2}$ the last time the patient was seen.

The fixed vitreous opacities were not abundant enough to prevent a view of the fundus, hence the reduced vision was not entirely due to them, but rather to an affection of the optic nerve. In this case a bilateral empyema of one or more of the cavities caused the long-standing neuralgia, the bilateral iridocyclitis and secondary glaucoma and the affection in each ear.

CASE 16.—Bilateral Optic Neuritis, Partial Atrophy of each Disc, due to Chronic Polysinusitis.

Mrs. S—, aged sixty-three, seen in November, 1906, complained of a slight but gradual loss of vision, the appearance now and then of flashes of light and bright colours before the eyes, and on a few occasions there had been a very marked reduction of the vision, which, however, was but temporary, lasting for but a few minutes at a time. A halo about a light had also been noted at times. The patient also suffered with frequent and at times severe headache, of no special location, but rather generalised, and liable to appear at any time and from no known cause. She was subject to attacks of vertigo sufficiently severe and frequent as to forbid her going unaccompanied on the street, as at any moment an attack of syncope might overtake her. Her heart was irregular and palpitations appeared from time to time, and for this she had been advised to consult an internist.

The eyes were normal in appearance; no muscular trouble; increase in tension not perceptible; anterior chamber and pupil normal. Media clear; fundi normal, save the papillæ, which showed partial atrophy, especially of the temporal half. The vision equalled $\frac{1}{2}\frac{1}{3}$ in each eye. Nasal examination showed "chronic rhinitis," the whole upper nares full of thick, foetid, purulent secretion on each side

of the middle turbinate. After cleansing the parts the ethmoidal region in each nostril was found to be necrotic. Operation was advised but refused.

CASE 17.—Partial Atrophy of each Optic Nerve; History of Syphilis; Chronic Sinus Empyema, probably Syphilitic.

Mr. X—, aged forty-eight, referred by Dr. F. H. Blackmarr, consulted the writer in August, 1906, on account of a gradual reduction of vision in each eye during the past few years. The patient admitted syphilis, for which he had been under classical treatment at different times, but without result. Partial optic atrophy; vision: right $\frac{1}{200}$, left $\frac{1}{40}$, slowly. The right external rectus paretic for some time; is often dizzy and suffers from headaches. Has had "catarrh" for years, and formerly a dripping from the nostril of a clear, stringy secretion was a common occurrence. Nasal examination showed both turbinates each side engorged; no purulent or muco-purulent secretion. The fronto-nasal canal could not be probed either side. The symptoms in this case suggested chronic sinus disease, probably due to syphilis, as luetic lesions frequently show a predilection for the upper nares. As the usual treatment had had no effect the treatment of the sinuses was advised in order to arrest, if possible, any further reduction in the vision. The anterior part of the left middle concha was amputated, but, as the patient was exceedingly nervous, the curettage of the ethmoidal cells was not accomplished. A muco-purulent secretion was present for days following the operation; and two or three small polypi were removed from the ethmoidal region. At first the patient insisted that the vision was better, and in frequent tests he did read the next line, $\frac{1}{80}$, correctly. The attacks of dizziness, however, became more frequent, and, as they were attributed by the patient to the operation, the case soon passed from observation.

CASE 18.—Bilateral Optic Neuritis and Muscular Imbalance following Influenza. Chronic left polysinusitis; Improvement following Nasal Treatment.

J. L. Van V—, a Chicago physician, aged thirty-seven. Many years ago was in bed six weeks with a severe attack of facial erysipelas, fever, delirium, face enormously swollen and covered with blebs; blisters and abscess on the hands, etc. The following year the facial erysipelas recurred, but in a milder form. Since childhood patient has noticed a frequent left-sided yellow nasal discharge; the left side is frequently stopped up and there has

been for years a feeling of pressure or compression in the left nostril that frequently preceded or accompanied a pain in the left eye and in the bone over the eye. Photophobia and epiphora were occasional symptoms as well as dizziness, especially on leaning forward or on suddenly rising from a stooping posture.

In 1895, severe attack of influenza, followed by palpitation, tachycardia, insomnia, pains in the head and other symptoms of neurasthenia; also by asthenopia, epiphora, and marked photophobia, but without reduction of the vision. The majority of the nervous symptoms persisted. Recurrent influenza in 1899 and 1900, March, the last attack accompanied and followed by photophobia, pain in left eye and frontal region, reduced vision in each eye, due to a choked disc, according to a well-known ophthalmologist. For months the patient suffered with intense photophobia, two pairs of dark glasses and a mask being worn for a long time. The conditions of the discs varied from time to time judging from the reports of the various ophthalmologists consulted. The field of vision was affected; it was of the hysterical type according to one ophthalmologist. Muscular trouble appeared for which exercises and prisms were given. The patient suffered all this time with a peculiar feeling of pressure or drawing in the left nostril; the side was nearly occluded, and a cold in the head always aggravated the symptoms, both general and ocular. He often told different physicians that in his opinion the nasal trouble caused the ocular symptoms. He was laughed at by some and by others he was told the trouble was purely psychic, hysterical, or he was a hypo, or would soon become one. On his insistence that the strange pressure symptoms in the left nostril pointed to some local cause of his trouble, two rhinologists advised the removal of a part of the enlarged middle turbinate, "to create more air space" or "relieve the pressure on the septum" but as others advised, for the same reasons, various operations on the septum, the latter was operated on three or four times, but with no relief. The condition went from bad to worse, the ocular symptoms, the dizziness, tachycardia, palpitation, head-pains, left supra-orbital neuralgia, insomnia, etc., were more intense and culminated in nervous prostration that confined the patient to his bed for ten months. After recovering he still suffered marked photophobia, supra-orbital neuralgia, dizziness, etc.; muscular unbalance was still present, and five tenotomies were performed, and still others advised by this and that ophthalmologist consulted, and ridiculed by others equally as prominent. In October, 1905,

another specialist again operated on the septum, and later, March, 1906, he removed a large "growth from the upper left nares." A very decided amelioration of all the symptoms resulted immediately, only to be followed at the end of a fortnight by a recurrence; the old troubles returned, but they never attained their former severity.

When first seen this patient complained of left supra-orbital neuralgia, nervousness, occasional dizziness, photophobia necessitating constant dark glasses, and asthenopia that forbade all reading. The right eye had normal vision; vision of the left was subject to frequent change owing to the variable size of a nearly central absolute scotoma and a relative scotoma extending from the centre into the upper half of the field in the shape of a wedge or fan.

Nasal examination.—Septum deviated towards the left, nearly touching the external wall. Middle turbinate, anterior part amputated, enlarged; granulation tissue and purulent secretion (staphylococci, Columbus Laboratories) in the middle meatus and fissura olfactoria. Part of the middle turbinate was removed and the anterior ethmoidal cells were curetted. For two days after the operation the patient suffered severe pain in the eye, orbit, nostril, and teeth, the neuralgia continuing about a week. After the post-operative congestion subsided there was marked improvement; the patient could occasionally lay aside for a time the dark glasses he had been a slave to for years, and he was again able to read with considerable comfort. He was subject, however, to occasional pain and ocular distress, and there was still present in the upper posterior part of the nostril a purulent secretion, and certain spots that were very tender, and when touched with a probe aroused the old ocular distress and pain. A cold in the head would also aggravate the ocular symptoms, and on different occasions the latter were relieved on the patient blowing a yellowish secretion from the nostril.

About June 1 an exacerbation appeared; the patient suffered from marked photophobia; the absolute and especially the relative scotoma became much larger, the latter including the macular region and nearly the entire upper half of the field. The central vision was reduced to $\frac{15}{100}$; by slightly elevating the visual axis it equalled $\frac{45}{70}$. The photophobia, vision, and field, were the same as above on June 19, when the remainder of the middle turbinate was removed and the posterior ethmoidal cells were curetted. This brought about rapid amelioration, relief

from the old feeling of tightness in the nostril and the intense photophobia, the black patch on the constant glass being laid aside after continual use for a month; the vision improved to I; the absolute scotoma became smaller and the relative about disappeared.

CASE 19.—Unilateral Hæmorrhagic Neuro-retinitis, Great Reduction in Vision, due to Frontal Sinus Disease Complicating Influenza. Marked Improvement after Treating the Cavity.

In February, 1905, a young man, aged thirty, reported that about ten days before he had accidentally discovered, while looking through a partially opened door, that his left eye was blind. He had consulted no other physician.

Present state.—External appearance of left eye perfectly normal in every respect. Pupil a trifle larger than the right. Media clear. Ophthalmoscope: Hæmorrhagic neuro-retinitis—the papilla was swollen, its borders invisible, the lower half was especially congested, the marked œdema extending well forward into the fundus, concealing here and there the large and tortuous veins. Several fresh hæmorrhages were noticed. In the macular region were many small pigment spots and numerous minute white dots, as well as fine white striae radiating from the yellow spot, the picture being strongly suggestive of an albuminuric retinitis. The right eye was normal in every respect. A fortnight or so before the patient had been in bed a few days with influenza, fever, cold in the head, and pain in different parts of the body. After being up a few days he discovered, as noted above, the ocular trouble. History otherwise negative. There had been no pain about the orbit; no epistaxis or nasal discharge; pressure on the orbital bones over the sinuses disclosed no tenderness. Nasal examination showed everything normal—no congestion of the mucous membrane in any place, no hyperæmia, and the parts did not present the hot, dry appearance sometimes present in sinus disease. A careful search after the use of astringents failed to show any pathologic secretion. The nostril presented a perfectly normal appearance in every respect. Dr. A. B. Hale, the well-known Chicago ophthalmologist, who examined this patient, remarked: “You surely do not think this is a sinus case; you will put him on K. I.” Attention was called to the sole symptom of sinusitis present, namely, dizziness on leaning forward. “K. I. can be given a few days later; let us first see what the probe will do.” A guarded prognosis was given, and the fronto-nasal canal was

probed the first and second days. The third day the patient remarked: "Doctor, you were wrong, as I can tell the time by the clock." In forty-eight hours the vision had improved to $\frac{1}{3}$, owing to the nearly complete disappearance of the fundal oedema. In the middle meatus there was a whitish secretion—not an abundant discharge, but nevertheless a perceptible amount that had not been in evidence when the patient was first examined. The treatment was continued. The fundal oedema disappeared entirely, but the colloidal spots in the macular region showed no marked diminution. The vision further improved at the end of the week to $\frac{1}{4}$, when the patient, who was a journeyman plumber, ceased coming and was not seen again.

CASE 20.—Unilateral Optic Neuritis, Slight Reduction in Vision, due to Frontal Sinus Empyema Complicating Influenza. Restoration to Normal by Treatment of the Sinus.

January 17, 1907, the writer was requested by Dr. Julia C. Strawn to see Mrs. C—, who was confined to her room on account of influenza with fever, severe pain in the right eye and in the orbital, frontal, temporal, and auricular regions. The submaxillary and pre-auricular glands were swollen and tender, and had been painted with iodine. The ocular appearance and tension were normal, and in reply to inquiry in regard to the vision, the patient said that she had noticed no reduction in visual acuity, but on testing it it was found that with her presbyopic correction she could read only Jaeger No. 4. Ophthalmoscopic examination showed the media clear; the disc oedematous, its borders completely obscured; no haemorrhages; fundus otherwise normal. Left eye normal. Right frontal sinus region sensitive to slight pressure; right nostril oedematous, and in the middle meatus there was a muco-purulent secretion. After the application of cocaine and adrenalin to the middle meatus a probe was readily introduced into the fronto-nasal canal, and on its withdrawal there was a free flow of yellowish secretion. The relief from the severe pain was almost instantaneous, the patient volunteering the remark that "if anyone had told me that you could relieve this severe pain at once, especially in my ear, by treating my nose, I would not have believed it." In this case perfect drainage was maintained by daily treatments; there was no return of the severe pain; the adenitis was relieved; the papillary oedema disappeared; normal vision returned; the patient left for California the sixth day. The culture was negative (Columbus Medical Laboratory). This

patient was seen in June, and she reported that there had been no more ocular trouble.

CASE 21.—Unilateral Optic Neuritis due to Chronic Sinus Empyema.

Miss G—, aged seventeen, was seen in 1904. The vision of the right eye had been very poor for years. The left eye had given her considerable trouble—frequent flashes of light and colours and asthenopia—which was not relieved by the proper correction. Ophthalmoscope showed an old optic neuritis in the right eye; the left was normal. Outward appearance, excursions, etc., normal. Long-standing nasal catarrh; daily attacks of neuralgia; patient unable to apply herself to anything on account of her continual suffering. Nasal examination showed a bilateral chronic empyema of sinuses, as evidenced by thick, greenish-yellow secretion in the middle meatus on each side. The left side was operated—curettage of necrotic ethmoidal cells—which brought about relief from the flashes of light, display of colours, etc., and the hitherto bilateral pains became strictly limited to the right side. An operation of this side was contemplated and various appointments made, but it was as often postponed and was not performed. The history was negative as to syphilis, etc.

CASE 22.—An Acute Attack of Glaucoma in a Chronic Primary Case due to Frontal Sinusitis—probably an Exacerbation of Chronic Sinus Disease.

On April 25, 1905, the writer was consulted by Madam D—, referred by Dr. M. E. Hincks, of New Orleans. The patient was aged seventy-two, slight and small in stature and fairly healthy. The sight of her left eye had gradually failed during the past few years until useful vision was lost. The outward appearance of the eye and surrounding parts was normal, no injection or other signs of an acute process; pupil active, small, corresponding with her age, same size as its fellow; tension normal. As the patient was emmetropic and there had never been any acute symptoms, homatropin was installed. Ophthalmoscopic examination showed the disc atrophic, its borders clearly outlined, no pigment deposits or other signs of a post-neuritic process; glaucomatous cupping; fundus otherwise normal. Diagnosis: Chronic simple glaucoma or atrophy with glaucomatous excavation. As the writer has made it a point during the past few years to look for a possible sinus involvement in all cases with an idiopathic ocular lesion, the patient

was requested to return. Two days later each nostril was found to be normal in appearance; no necessity to use an astringent, as there was no congestion; the turbinates were not enlarged nor hyperæmic; the middle meatus open, perfectly natural in appearance, and free from polypi, granulation tissue or any secretion. No endeavour was made to probe any accessory sinus, nor was the middle meatus examined further. There was no evidence of an involvement of any cavity, no spontaneous pressure pains, and, as the patient's right eye was practically normal, the case was dismissed.

On May 6 the patient's daughter called and reported that her mother had been confined to her bed for three days with severe pains in her eye and head, and that the doctor said "the eye was as hard as a stone." The patient was found in bed in great distress on account of intense pain in the frontal region and in the eye. She was retching, vomiting bile, and very weak from suffering, retching, and sleeplessness, which had been nearly continuous for three days and nights. The external parts were normal; no oedema, redness, or swelling of the lids; marked ciliary injection; no chemosis or corneal involvement; anterior chamber shallow; medium mydriasis; the eyeball very hard, tension + 3; vision further reduced, hand movements—an acute attack of glaucoma appearing in a chronic simple case. It was then learned that a few years before the patient had struck her forehead, immediately over the eyebrow, by falling on the edge of the pavement, a slight scar being still visible, and since then she had suffered from supra-orbital pain, not intense, but an oft-recurrent "neuralgia" in the left frontal region, and, in addition, there had been an occasional left nose-bleed. These symptoms are very suggestive of a chronic or latent affection of the accessory sinuses, and the exquisite tenderness of the bony walls of the frontal sinus to the slightest touch, though often present in acute glaucoma, is also typical of an acute attack of sinusitis, or an exacerbation of the chronic form; accordingly, it was determined to again make a nasal examination, and Dr. Hincks came by appointment at 5 o'clock that evening. The patient was still in the same condition: intense pain, retching, vomiting, and exquisite sensitiveness about the frontal sinus. Nasal examination revealed a congestion of the upper parts; the middle turbinate was greatly swollen, soggy, and covered with round elevations, resembling a mulberry. It closed completely the middle meatus. There was no secretion to be seen, but, on the contrary, the parts presented a dry, hot appearance, a condition sometimes noticed in closed

sinusitis. After the application of astringents to the middle meatus no pathologic secretion could be noted; the fronto-nasal canal was probed; no eserin or pilocarpin instilled. (Some drops, boracic acid, were instilled as a concession to the all-prevalent idea that "drops" must be given.) The following morning the patient reported complete relief from the intense pain, retching, etc., and "the first night's sleep for nearly a week." The intra-ocular tension was very markedly reduced (T. + 1); no change in the appearance of the eye or pupil; frontal bone still sensitive to slightest touch; a muco-purulent secretion in the middle meatus coming from the frontal sinus. Same treatment. In the evening "much better, no pain," patient resting and in a good humour; tension possibly above the normal; frontal bone still very sensitive. The patient was seen twice daily, and a continual discharge could be seen coming from the frontal sinus. The condition remained practically *in statu quo*, slightly increased tension; no pain, save on slight percussion over the frontal sinus. The fourth day no evening visit was made, as it was reported by telephone that "the patient was resting well and was in a good humour." The following morning, however, while treating the patient, she suddenly jerked back her head, resulting in a forcible withdrawal of the probe from the fronto-nasal canal and consequent trauma. Following this there was a clotting of the secretion, now sanguous, in the middle meatus, with stoppage of the canal, and a temporary discontinuance of the treatment was necessary. An aggravation of the symptoms, pain, and increased tension appeared, and eserin was instilled for the first time, and continued daily from then on, which contracted the pupil, but caused no marked amelioration in the symptoms. On the 14th left epistaxis. The clotted secretion was carefully removed from the middle meatus; amputation of the anterior end of the soggy middle turbinate was advised, though reluctantly, as it is to be avoided if possible during the acute condition, owing to the post-operative congestion. The operation was not consented to. The symptoms varied from day to day, but a gradual improvement could be noted. On the 20th the patient reported no pain in the eye, but a feeling of pressure or fulness in the forehead, "like a tight band," was continually present; frontal bone very sensitive: "Don't touch my forehead"; no increased tension. The 21st, morning visit, same condition, but on the morning of the 22nd the patient was again in great pain and vomiting, and the tension was markedly increased (+ 2). Pupil still contracted by eserin. She reported severe, nearly continual pain in the head the

day before, but did not complain of pain in the eye until during the night, when the headache had become intense. At the evening visit, the condition being unchanged, the fronto-nasal canal was again probed. On the 23rd, morning, patient sitting up in bed ; "had slept all night"; no pain; no increased tension; muco-purulent secretion again flowing freely from the left frontal sinus. From this time on there was continual improvement no necessity to again probe the fronto-nasal canal. During the next two weeks the eye was frequently palpated, but showed no increased tension; the ciliary injection gradually disappeared; the tenderness of the frontal bone, however, persisted. There was an improvement in the vision, though it was never actually taken, as the appearance of yellow fever disturbed the regular routine of life, and the patient was not seen again. She wrote me in January, 1906, that she had had no more trouble with the eye. In this case the drainage of the frontal sinus brought about a reduction of the increased intra-ocular tension, first, before the use of a myotic, and, second, when the increased tension appeared during the continual use of eserin.

CASE 23.—Unilateral Retro-ocular Neuritis, said to be due to Contre Coup. Probably the Result of Sinus Empyema.

In April, 1907, a man, aged about thirty, iron worker by trade, visited a well-known New York eye clinic on account of marked dimness of vision of the left eye. He was demonstrated to the physicians and assistants present as "a case of partial optic atrophy due to *contre coup*." There was a slight scar below the left eye, where he had been struck by a small iron bolt that he failed to catch when tossed to him. The accident occurred about six months before. On my noting no discoloration of the left disc it was thought that the right one was the one affected, but this one also showed no discoloration, and the patient said that it was in the left eye the vision was so reduced. On questioning him, it developed that the injury to the cheek happened about six months before, and he was positive the eye had been affected not more than two weeks or so. He had had a bad cold for some time, had frequently felt dizzy, and, on being handed a towel, he blew by an effort a drachm or two of yellow pus from the left nostril. The patient was not seen again.

CASE 24.—Unilateral Albuminuric Neuro-retinitis Terminating in Marked Reduction of Vision; chronic Ethmoiditis of the Corresponding Side.

Mr. X—, a strong, healthy man, aged about fifty-five, was

recently seen in the office of an eminent *confrère*, who was treating him for chronic ethmoiditis. During the conversation the patient stated that he had been blind in one eye for several years, due to albuminuria, as he had been told by a well-known ophthalmologist. On inquiry it was learned that it was the left eye that was affected, the same side as the chronic sinus disease. An operation had been advised, but was refused. The patient was not seen again.

CASE 25.—Unilateral Optic Atrophy; Amaurosis; following Facial Erysipelas due to Sinus Disease.

Mr. M—, aged fifty-eight, was seen in October, 1906. The patient is a strong, healthy man, well in all respects with the exception of the left eye, which had been blind since an attack of facial erysipelas several years before. At that time he was confined to his bed for two weeks or more with intense headache, enormous swelling of the face, fever, delirium, etc.; the eyelids were completely closed for some time, and when he was able to open them he discovered that the vision in each eye was reduced, the termination being normal vision in the right eye and blindness in the left. Present state: right eye normal. Left eye normal in external appearance, excursions, etc.; atrophy of the optic nerve and no light perception. Nasal examination: "Chronic atrophic rhinitis"—enlarged middle turbinates, muco-purulent secretion, and granulation tissue in the middle meati.

CASE 26.—Unilateral Partial Optic Atrophy due to Sinus Disease following Influenza.

Mrs. S—, aged forty-seven; first visit April 10, 1907. History of influenza four years ago, followed by neuralgia in the left supra-orbital, temporal, and occipital region, and at times in the vertex; reduction of the sense of smell, and also of hearing in the left ear; occasional dizziness; dimness of vision in the left eye—can no longer tell the time by the town clock. Since the attack of influenza the patient catches cold more readily, and this always aggravates the symptoms. During the past few months there has been occasional pain in the left eye and peri-orbital region; these pains are often present on waking up in the morning before using the eyes. The external appearance, excursions, pupil, and media are normal; the disc partially atrophic; the vision $\frac{1}{20}$ with correction (+·62 D. S.). Patient says the left eye was always as good as the right until the attack of influenza. Right eye normal. The left middle concha somewhat swollen, and in the middle meatus

a secretion—mucous and pus cells (Columbus Medical Laboratories). No culture was made. The sinuses were treated a few times, resulting in the appearance of a yellowish nasal discharge. Operative interference was suggested, but was not consented to.

CASE 27.—Bilateral Optic Atrophy; Amaurosis; Muscular Involvement; said to be due to a Tumour Cerebri. Nasal Examination Negative.

Mr. P—, aged fifty, referred by Dr. Brosnan, of New Orleans, had total atrophy of each optic nerve, vision equalling bare light perception. Various physicians who had examined the patient attributed the condition to an inoperable brain-tumour. The patient was a strong, robust man, with negative history as to any infectious disease, syphilis, tabes, etc. The vision had always been perfect until some three or four years before, when an intense pain in the forehead and upper part of the head was accompanied or followed by trouble in the ocular muscles (double vision), which symptom soon disappeared. About two weeks later a second attack appeared, while the patient was at the theatre. He had to keep an eye closed the whole time; he could see perfectly with either eye, but when both were open everything was confused. These attacks of fierce pain or "awful pressure" occurred frequently, lasting an hour or so, and were accompanied now and then by diplopia, and occasionally by complete loss of vision for several minutes. Patient said that while walking on the side-walk an attack of blindness would compel him to lean against the fence until the vision returned. Soon after the theatre incident the vague pains were so severe and constant that he was confined to his bed almost continually for a week, taking anodynes for relief. Later he was up and about, the distant vision being good, but the near vision was affected—he could not read, and the pupils were dilated, this condition lasting some three weeks. The patient consulted two oculists, who found no reduction in the vision. He was told not to use his eyes. The patient was again confined to his bed most of the time for two or three months with almost daily attacks of intense pain, a dull pain or feeling of pressure constantly present between the attacks—"was never free from pain." These frequent attacks of recurrent pain, now daily, now three or four times a day, were accompanied by a perceptible loss of vision after each severe attack, and in about six months after the onset the vision was about gone. Several months ago he was in bed for a week, suffering from excruciating pain in the head and eyes and

"base of the brain." There was no history of catarrh or epistaxis; never any involvement of speech or any movement of the face or limbs: never any twitching or jerkings; no edema or redness about the eye were ever present. The nose had never been examined. Present state: no pain since the severe attack six months ago; no ocular congestion or increase in tension; anterior chamber normal; media clear; both discs atrophic, bare light perception. No nasal secretion; middle conchæ hypertrophied, but not tumefied; no pathologic secretion present. The examination of the sinuses was not attempted, as no possible benefit could result and, if a chronic affection were present, the examination might induce a return of his sufferings.

*CASES 28 and 29.—Two Cases of Bilateral Optic Atrophy; Am-
aurosis; no Cause Determined. Nasal Examination Negative.*

In 1906 two men (New Orleans, Baton Rouge), aged thirty-three and thirty-seven, with bilateral optic atrophy, were seen. The history in each case was negative as to syphilis; there were no signs of tabes, tumour cerebri or any of the well-known causes of optic neuritis. The loss of vision had been gradual, and they had been blind for several years. Each patient had suffered with intense headache, and in one case vertigo had been a frequent symptom. The nasal examination was negative in each case.

*CASE 30.—Unilateral Optic Neuritis; Partial Optic Atrophy;
following a Cold. Surgical Treatment of the Sinuses Refused.*

Mr. H—, aged fifty-five, first seen June 15, 1905. Left eye normal. Right eye: surrounding parts normal, save for a few dry herpetic scars on the right forehead and inner margin of the eye-brow; excursions normal; episcleral injection; no increase in tension. Vision, $\frac{15}{200}$. Under atropin, medium mydriasis, partial atrophy of the optic nerve. History of a bad cold in the head, contracted three months before in a sleeping car, followed by pain in the orbital region, severe enough to confine him to his bed for two or three weeks. This pain was continuous, with frequent daily exacerbations, when it was well-nigh intolerable. The orbital region was red and oedematous and the eye could not be opened. Later the herpetic vesicles appeared and gradually the pain became less violent, and when he was able to raise the lid he discovered that the vision was affected. An oculist, called in consultation, diagnosed neuritis (according to the patient) and treated the case some two months, with no improvement in the condition. The

patient complained of an indefinite pain or burning sensation in the internal orbital angle, the orbital ridge, forehead and temporal region. Nasal examination showed a hyperaemia or congested condition of the lower turbinate, shutting off the view of the middle turbinate. On the application of astringents the middle turbinate was found to be greatly congested and pressed tightly against the external wall, which so completely obliterated the middle meatus that it was impossible to enter the latter with the finest probe, even after the use of astringents. This condition, of course, rendered impossible the examination or treatment of the sinuses and tended to aggravate or prolong any possible inflammation in the cavities. Surgical interference was frequently urged, but refused, and the patient soon passed from observation. In this case the use of atropin for a week or more brought about medium mydriasis only and never caused any symptoms. One year later the patient told the writer that he had consulted an eminent New York ophthalmologist, who said he had suffered from an attack of glaucoma, which had been aggravated by the use of atropin.

CASE 31.—Bilateral Choked Disc following Influenza; Amaurosis; said to be due to Syphilis. Sphenoidal Sinuses and Right Frontal Sinus the only ones Explored.

On March 31, 1907, an ophthalmologist said to the writer: "Well, I have a case of double choked disc, following a cold, that is not due to sphenoiditis, as I opened the sphenoidal sinuses and found them to be normal." It was stated further that a craniectomy was to be performed that afternoon for the relief of intracranial pressure, and an invitation was extended to witness the operation. The writer replied that an involvement of either the ethmoidal, the maxillary or the frontal cells could cause a choked disc and amaurosis, and, further, that the ethmoidal cells at least should be curetted and the opening of the cranium postponed forty-eight hours to await the result. On arriving at the hospital the ophthalmologist announced to the several physicians present the writer's opinion as expressed above, and quite a discussion ensued, during which it was learned that the patient, a woman, aged fifty, had had an attack of influenza about two months before, followed by severe headache, optic neuritis, retinal haemorrhages, etc., and that on the appearance of the ocular symptoms syphilis had been suspected, and the appropriate treatment had been given, but without result. The condition went on rapidly to amaurosis; the sphenoidal sinuses were opened, which brought about an ameliora-

tion of the severe headache, but no improvement in the vision. Intra-cranial pressure or some intra-cranial lesion was then suspected. On inquiry as to the symptoms of intra-cranial pressure it developed that severe headache, vomiting, and the bilateral choked disc were the only ones present; there had been no focal symptoms and no involvement of the sensorium: the patient had conversed intelligently one half hour previously with one of the physicians present. The writer stated that Weichselbaum had found an empyema in one or more of the sinuses in every one of twelve influenza autopsies; that the absence of a nasal discharge did not exclude sinus disease; that an involvement of the sinuses could account for all the symptoms, and that the ethmoidal cells at least should be curetted before doing a craniectomy, especially in view of the fact that not even a delirium had been present. A doubt was expressed, however, as to whether sinusitis could cause amaurosis, and, the prevailing opinion being in favour of some intra-cranial involvement, it was determined to open the cranium, which was done in the occipital region, "because the majority of intra-cranial abscesses follow middle-ear disease." After removing a large button, the dura was found to be normal and there were no evidences of intra-cranial pressure, abscess or other lesion. The patient was then prepared for opening the right frontal sinus, but this was found to be wanting, and a small opening of the cranium at this point again showed everything to be normal. No further surgical interference was undertaken; no other sinuses were treated. It was announced later that after the craniectomy there were no more severe pains, and that the case terminated in blindness in each eye—"optic atrophy, undoubtedly specific," according to the ophthalmologist. It was learned later from Dr. K.—, the physician who referred the patient, that, following the attack of influenza, she suffered frequently from attacks of dizziness; she spoke of the loss of the sense of smell, and there had been an abundant purulent nasal discharge. Two rhinologists who witnessed the intra-nasal operations expressed a doubt as to whether both sphenoidal sinuses had been opened.

CASE 32.—*Hæmorrhagic Neuro-retinitis and Muscular Involvement, said to be due to Tumour Cerebri or Cranial Abscess; Recovery under K. I.; Nasal Examination Negative.*

During the week or ten days that the patient with hæmorrhagic neuro-retinitis (19) was under treatment, it was learned that the seventeen-year-old son of a life-long intimate friend living in

Chicago was suffering with frightful pains in the head, optic neuritis, etc., that were attributed to a brain tumour or cerebral abscess and that an operation was contemplated. The family were advised by telegraph to have the nasal sinuses examined, and if an operation was performed, to open the sinuses before trephining. In reply to inquiries it was learned that the pain in the head had gradually increased in severity, and later a haemorrhagic neuro-retinitis and an involvement of the ocular muscles had appeared. The diagnosis was tumour cerebri or a cerebral abscess. There was difficulty in determining the location of the lesion, and unless the patient showed some improvement in a day or two a craniectomy would be performed; "we will see the case with Dr. Fish, but we know that if he saw the patient he would not think it was a sinus case." This case, under large doses of K. I., went on to perfect recovery without operation. The patient was examined in December last: the eyes were normal; the nostrils congested; the turbinates, both lower and middle, swollen; no attempt was made to examine the sinuses and no astringents were applied. In this case syphilis, hereditary or acquired, is not to be thought of. As to the diagnosis in this case, was it a cerebral abscess that was absorbed, a brain tumour that was arrested, or sinus disease (capable of causing all the symptoms) that healed spontaneously, as it often does?

(*To be continued.*)

THE TREATMENT OF FOREIGN BODIES IN THE RESPIRATORY TRACT AND OESOPHAGUS.

An Address delivered before the American Laryngological, Rhinological, and Otological Society, at the Thirteenth Annual Meeting, held at New York City, May 30, 1907.

BY PROFESSOR GUSTAV KILLIAN,
Freiburg, in Breisgau.

THE following is an abstract of an address delivered before the American Laryngological, Rhinological, and Otological Society at the Thirteenth Annual Meeting held at New York City, May 30, 1907. Speaking of foreign bodies in the respiratory tract, Professor KILLIAN said:

I need not say much with reference to the upper respiratory tract. We are often called upon to treat foreign bodies in the nasal cavities, especially in children. As a rule, they are buttons,

beads, etc., made out of various materials, cherry-seeds, beans, peas, and occasionally a forgotten cotton tampon. Nasal calculi also belong to this class.

Once I was called upon to remove a free osteoma, of the size of a hazel-nut, which had been left in the nasal cavity after an operation performed the year before, and which rolled to and fro with the movement of the head. It was incomprehensible how the patient could endure the condition so long. Another case was that of a child who accidentally ran a splinter into his nose. Another infant was brought to me suffering from very high fever, bad smelling nasal discharge, and swollen glands, resulting from a paper plug which his sister had stuck into his nose some time before. That the severe clinical picture depended upon this was shown by its disappearance after removal. Finally I must mention a case in which a wooden plug, as thick and long as the little finger, was shot through the maxillary sinus, passing into the nose and perforating the septum.

Foreign bodies in the nasal cavities in children are generally found in the vicinity of the vestibule, if no unskilful efforts at removal have been made. In one of my cases, the ethmoid bone was penetrated as far as the orbit in the fruitless search for the foreign body. Inflammation symptoms may follow such efforts, which may make the discovery of a foreign body very difficult.

The simplest and the most common method of removal is to introduce a thick nasal probe, bent forward, beyond the foreign body, and then draw it from behind forward and remove it. The little patient often, involuntarily, assists in this by moving the head backwards. A strong pair of toothed forceps is the best instrument to use for large impacted foreign bodies. When necessary, a great amount of strength may be used with this instrument, so that the foreign body may be extracted with certainty.

So far as foreign bodies in the accessory cavities of the nose are concerned, the maxillary sinus is the principal site. They are generally trocars and drainage tubes which are shoved into artificial openings. Occasionally, roots of teeth or portions of bone remaining after operation are found. I have often succeeded in locating and extracting a drainage tube through an alveolar fistula by means of a nasal speculum. I have occasionally removed such objects while performing the radical operation.

Foreign bodies are seldom found in the epipharynx. I was once called upon to remove a collar button which I had drawn out

of the larynx, under narcosis, with the head hanging downwards; it slipped from me and fell into the epipharynx. Its removal was more difficult than I had anticipated.

In the mesopharynx and hypopharynx, fish-bones are most frequent. They are found in the region of the tonsils, sometimes at the base of the tongue, and rarely in deeper positions. They are readily removed with forceps. Pieces of bone may be lodged in the sinus pyriformis. I was called upon to remove a splinter of bone, sharp at both ends, which was stuck in this place, causing the patient to have severe symptoms, though it was not discovered by the physician in charge. In another case, deep pharyngeal and laryngeal abscesses, resulting from a chicken-bone sticking in the insus pyriformis, were spontaneously evacuated and cured.

Foreign bodies in the larynx constitute an extensive and interesting chapter of our subject, but are not so common as generally supposed. As a rule the foreign body immediately travels further down. Sharp and uneven objects are most apt to be caught in the larynx: needles, fish-bones, bone splinters, shells of nuts. Once I saw half of a dental plate lying there.

The laryngoscopic method of extraction has, in this particular, achieved a great triumph. It may be called the normal method for adults, as long as the foreign body is not firmly wedged in. In children, the removal through the agency of the laryngoscope is very difficult, and though it may be successful under narcosis, still our old time technic has its limitations. It entirely fails when the foreign body is tightly wedged in. The smaller the child, the greater the difficulty. It was formerly necessary to take refuge in laryngo-fissure, but now we have the additional advantage of direct laryngoscopy, which makes laryngo-fissure superfluous in the majority of cases. In all doubtful cases in children, I should recommend the practice of entering directly with the tube, under narcosis, and with the head hanging down.

The number of cases treated so far in this way is small (Denker, Garel, Guisez, De Stella, G. Killian), but it justifies the greatest hope for the future. I recommend you to use my tipped tube spatula. The base of the tongue is drawn forward with it and the epiglottis and inner surface of the larynx are cocainised. Under narcosis this is done with the head hanging down. The spatula is then passed over the epiglottis, which is thus drawn forward. By suitable illumination with an electric forehead lamp (Kirstein's), or with an electric extension lamp, a beautiful view into the larynx is obtained, not only as far as the vocal bands, but also

into the subglottic space and deeper, provided the local and general anaesthesia is sufficient. Foreign bodies can be readily seen and removed with suitable forceps. If the process is made difficult by the mucus that collects, this is removed by my pump (which has lately been modified by my assistant, Brünings). Any-one who has had experience can, under certain conditions, avoid tracheotomy in recent cases, if the danger of suffocation is not too great, by rapid performance of direct laryngoscopy, as Denker succeeded in doing in one case.

FOREIGN BODIES IN THE TRACHEA AND BRONCHI.

I come now to the treatment of foreign bodies in the trachea and bronchi. In these, the direct method has the field entirely. The results have been extraordinarily successful. Since 1897, when I reported my first case in the *Münchener med. Wochenschrift*, until the end of March this year, 164 cases have been reported. (I count only the cases in which a foreign body was actually present.) To my certain knowledge, however, there are a large number of cases still unreported, so that altogether there are 200 or more. Practitioners have made themselves familiar with the new method in most civilised lands. It was very early and ardently employed in the United States.

In order to reach a foreign body in the trachea or bronchi, it is necessary to introduce a tube of proper calibre and proper length through the glottis, that is, to perform upper direct tracheo-bronchoscopy.

The tube should be chosen just wide enough to pass smoothly through the larynx. In adults, its calibre should be from 9 to 14 mm., and in children, as a rule, it must be reduced to 7 mm. Very small children require tubes of 5 mm. or less in diameter. The length of the tube should correspond, in adults from 30 to 40 cm., in children from 20 to 30 cm., or even less. The actual measurement for the removal is to be taken from the upper row of teeth to the point where the foreign body lies, with the head bent back. This is easily ascertained before the operation.

The variations in the age of patients, the size of their bodies, the width of the larynges, and the location of the foreign bodies are so great that a great many different tubes must be kept on hand. Furthermore, it sometimes happens that a change from a longer or shorter tube is necessary during the operation. In order to secure a desirable simplicity in this particular I have effected

the lengthening of the tube by introducing secondary tubes. The sliding tubes of Brünings, which I now show, have been constructed accordingly, and are very efficient for this purpose. They are composed essentially of a tube spatula, through which a second tube may be pushed as far as desired. An equipment of five or six of these tubes is sufficient for all adult cases. A regulator attached to the lateral wall of the tube spatula controls the introduction of the tube. The tube spatula is readily inserted and passed through the glottis. We can easily introduce the sliding tube any distance from the middle of the trachea to the bronchi of the lower lobes. Two lateral openings in the sliding tube renders respiration easier. They are especially necessary when it is desired to introduce a tube, filling the larynx, into a branch bronchus, where the lung tissue is not sufficient for the purpose of respiration (shut off by foreign body or tissue changes).

Good local and general anaesthesia must be secured in order to introduce such a tube into the deeper air passages. A hypodermic of '01 to '02 grm. of morphine is given to adults a half hour before; in children, the internal administration of codeine, 5 to 15 drops of a 1 per cent. solution, according to age, will be advantageous.

When no narcosis is to be employed, the larynx and trachea are cocaineised by the aid of a mirror while the patient is in the sitting position. In this connection, the epiglottis may be pulled so far forward that a cocaine applicator, extended perpendicularly, introduced through the mouth, with the aid of a mirror, will glide over the posterior wall of the larynx into the deeper parts. This procedure may also be undertaken by direct laryngoscopy or by the aid of the finger. Wherever I use general narcosis I cocaineise only after it is sufficiently deep. Then the mouth speculum is introduced, the tongue seized with the forceps and pulled forward, and cocaineisation is made by means of the tipped tube spatula, as before stated.

It is best, in performing direct bronchoscopy for the removal of foreign bodies, to have the patient in the recumbent position, whether or not a general anaesthetic is used. In this way all the disturbances, so easily called forth by the accumulated saliva and mucus, are suppressed.

The patient should be placed so that the foreign bodies lie at the highest level and the head at the lowest, since in this way the clearest field of view is obtained. Generally I have the patient lie on his back, but lately I have begun to place him on his side, which seems to be the most advantageous position.

It is a great mistake to bend the head too far back at the introduction of the tube spatula. One should begin with a moderate bending of the head backwards and increase this during the procedure as far as occasion demands. The tube spatula is introduced through the angle of the mouth from the opposite side, if the situation of the foreign body is known. The epiglottis, arytaenoids, and vocal bands are sought and the instrument is then passed between them into the trachea. If the cocaineisation has been sufficient, there will be no interference at the glottis.

After the deep portions and the bronchus especially have been carefully cocaineised (without pushing the foreign body deeper), the sliding tube may be introduced first to the bifurcation and then into the affected bronchus. It should be advanced until it reaches the neighbourhood of the foreign body, which is often covered with mucus and granulations or but slightly visible. It is then necessary to suck up the secretion with the pump. The granulations must be carefully treated so that no haemorrhage from in front occurs.

If the foreign body does not lie in a position where it may be easily removed, the neighbouring mucous membrane should be made anaesthetic by the application of cocaine on a small cotton carrier or by a cocaine spray (weak solution), inasmuch as this region is hyperaesthetic. The slightest movement of the foreign body causes severe paroxysms of coughing. The greatest difficulty results from neglecting to cocaineise in this way, for it is clear that everything else has been made anaesthetic, especially the whole passage-way to the foreign body, except the mucous membrane directly adjoining.

The procedure is much simpler in tracheotomised patients, whether tracheotomy has already been performed or whether we ourselves have been forced to perform it on account of the severe dyspnoea, or must perform it because the extraction cannot be accomplished by the upper method.

Lower direct tracheo-bronchoscopy seldom requires general anaesthesia. Simple cocaineisation of the tracheo-bronchial mucosa is sufficient. Larger and shorter tubes may be used. For the reason already stated, it is best to have the patient in the recumbent position. As a rule, Brünings' new instruments are the best adapted for lower tracheo-bronchoscopy.

He divided the foreign bodies into two groups, namely those which were hard, such as fish-bones, nails, steel pens, coins, pebbles, prune-stones, beads, cherry-stones, coffee-beans, pieces of

bone, teeth, metallic objects, shirt and collar buttons, artificial teeth. Having dealt with the methods adopted in such cases he described the means of extracting hollow bodies, such as fragments of cannulae pencils, whistles, pen-holders; those bodies are breathed into the bronchi and can be reached by upper bronchoscopy and grasped at the edge with forceps. If the edge of the foreign body is covered with swollen bronchial mucosa, it is better to use Killian's own body forceps, which, after being pushed in the opening, spread their branches in the hollow body and give a reliable hold.

Speaking of bodies which are not hard, such as melon-seeds, oranges, dates, cereal spikes, expandible fruit kernels, soft beans, Killian says, as far as the technique is concerned upper and lower tracheo-bronchoscopy may be used to remove the foreign bodies. Extraction forceps are satisfactory. Bodies that break easily, such as nut kernels, must be removed with great care, because if broken with the forceps a number of foreign bodies are made out of the one, and complications may result, especially with small children. He mentioned many cases involving soft and coherent bodies, such as cotton, pieces of meat, quill of an arrow, soft down, bodies that were soft but not coherent such as pieces of turnip, plant leaves, pieces of fruit, and other things as of serious moment if of large size. Those bodies that are not coherent should be removed with bean-forceps.

The address also dealt with the removal of foreign bodies from the oesophagus, and Killian mentioned that he had had seventeen cases of this class, all of which were promptly cured by his method of removal.

DISCUSSION.

Dr. CHEVALIER JACKSON, of Pittsburg, Pa., expressed the obligation that all laryngologists are under to Professor Killian for opening a new field, one already fruitful and large with promise. That bronchoscopic work was done at all, and that it was done safely and effectively, was due to him. In his own work Dr. Jackson had had the utmost satisfaction with the tube designed after Dr. Killian's original pattern, which he believed would never be improved in any essential particular. The method of illumination, however, presented some difficulties. Bronchoscopy with the Kirstein or any other head-light was practical in many but not in all hands. It demanded not only a natural endowment of dexterity, but also such clinical opportunities of practice as come to but few. He had, therefore, added to the Killian bronchoscope a light carrier in a separate tube, and this modification, he believed, rendered the work easier. It could not be hoped to go beyond Professor Killian's own results, but the light carrier at the end of the tube would extend the

usefulness of his method by making the instrument effective in the hands of men of lesser skill. Bronchoscopic work for the present concerned itself mostly with foreign bodies, and it was highly desirable that cases should be dealt with by some one immediately at hand. In every centre of population there should be at least one man competent to explore the bronchi. Every effort should be made, therefore, to devise easier means of work. With the tube which he exhibited any man accustomed to the direct inspection of the larynx might, without hesitation, explore the tracheo-bronchial tree to its second and third subdivisions. In no case of foreign body or exploration for disease was damage done. In no case was shock apparent. The dangers of superior bronchoscopy were those of general anaesthesia. The dangers of lower bronchoscopy were even less. His preference was for upper bronchoscopy, as with distally illuminated tubes and the accessory drainage canal in the wall of the tube, the view was as good in a long tube as in a short one. Since the development of Professor Killian's work he could conceive of no foreign body case suitable for expectant treatment. What may be done with the bronchial tube in diseased conditions was a question for the future to determine, but the prospect was bright. He believed that in the near future practically all endo-laryngeal operations will be done by the direct method, and that many of the more important examinations will be made in the same way. With the patient in proper position, the larynx thoroughly cocainised, the passage of the tube down to the tracheal bifurcation was so simple a proceeding that it might well be made a matter of routine. A few years ago the diagnosis of simple local lesions below the larynx was very imperfect and the treatment was almost impracticable, but Professor Killian's work had shown how to deal with these conditions. Upper bronchoscopy had a considerable field of usefulness as a routine method as an adjunct to the direct examination of the larynx. Where the indication was primarily of tracheal or bronchial trouble, and particularly where operative work was indicated, lower bronchoscopy was a somewhat easier operation. With the tracheotomy done under infiltration anaesthesia, he believed it often to be safer. With a separable speculum there was not the slightest difficulty in promptly passing the bronchoscope through the glottis. When he first used Professor Killian's separable spatula he considered it a device second in importance only to the bronchoscope itself. In a modified form he had found it so useful that he was loth to abandon it.

Dr. E. FLETCHER INGALS, of Chicago, wished to add his expression of gratitude to Professor Killian for developing bronchoscopy. There was, however, much to be done to ensure the safety of the operation. He had not used Professor Killian's pump for removing mucus from the bronchi, but had adapted Jackson's pump for the ear to this purpose. He emphasised the importance of pulling out the tongue. One must learn from experience the effect of the drugs that may be applied to the mucous membranes for the purpose of preventing bleeding, and how much may be used with safety. There was considerable danger from the use of too much of either cocaine or adrenalin. His preference was for upper bronchoscopy, which he would try first, particularly in girls and women, for a reasonable time—not more than fifteen minutes—and if not successful would then do tracheotomy. He had had no success at all with the electric magnet. With a pin-finder, something like a corkscrew, he had been able to get pins into the middle of the lumen of the bronchus; then to shove the bronchoscope down over them and remove them with forceps. There was danger from the little hooklets recommended in Pro-

ffessor Killian's earlier paper, as they might easily become caught in a small bronchus and could not be removed except by tearing out, which would be likely to result in emphysema and death. The swelling of the larynx after bronchoscopy had sometimes required speedy tracheotomy. He cited a case in which he had removed a foreign body by upper bronchoscopy. The following morning the child seemed to be suffocating from swelling of the larynx; he introduced a Dwyer's tube, which was later coughed up, and there was no further trouble. He had seen three cases die after what he would consider easy operations, in which he was sure there had been no perceptible injury to the air-passages. The chief questions which it seemed important to consider were, What causes the danger? How long the operation may be continued? and, What symptoms indicate that the operation is being carried too far?

Dr. A. COOLIDGE, of Boston, Mass., said that a few years ago if a foreign body were inhaled, it was either let alone in the hope that it would be coughed up, or tracheotomy was done, and forceps were blindly pushed into the trachea and bronchi, in the hope of seizing it. The mortality of these two methods had not differed enough from each other to establish a principle of action. The first great step in advance was the demonstration that a straight hollow tube could be inserted through a tracheal wound, and the lower trachea and primary bronchi seen by direct inspection. By this simple proceeding, with a comparatively simple armamentarium, every surgeon might be ready to successfully reach a large proportion of inhaled objects. Foreign bodies presented a large variety in size and shape, and consequently varied much in the ease with which they might be removed. Every help in the avoidance of injury, time, and the danger of infection, might in any case mean the difference between life and death. Consequently a carefully devised series of instruments, and a well-studied technique, were necessary for the greatest success. For this advance in medical efficiency, the medical profession and the patient were indebted to Professor Killian. It would be a long time before even a majority of medical men could find within an available distance, when the case arises, either the instruments or the skill to extract a foreign body in the way in which it would be done in Professor Killian's clinique. For several reasons the lower route would be the safer one for a limited equipment, and the question of choice between upper and lower bronchoscopy should properly depend fully as much upon the available equipment both of instruments and skill as upon other conditions. It should always be borne in mind that if a tracheotomy will probably be necessary, prolonged attempts by the upper route might exhaust the patient more than is warranted. The important thing with reference to light is that there should be enough. Until the relative value of different forms of light becomes definitely fixed and the apparatus therefore universally available, there could not be too many resources, if they are efficient. If enough light could be forced into the tube from above without interfering with the work, that was all that was necessary. Practically, however, many in this country had found that the small distal lamp gives so bright a light, and is maintained by so simple and portable an electric supply, that it was likely to be retained for the present, at least, as a substitute. He had not found that secretion shuts off the light any sooner than it would shut off the view of the field if the light came from above. It did add a complication to the tube, and was a source of possible danger by breaking. The light was also more uneven and did not penetrate so far beyond the end of the tube as a powerful light from above. He reiterated what Professor Killian had said, that

to do good work and to avoid injury the instruments must be fitted to the particular case, which meant anticipation beforehand of all possible conditions.

Dr. FRANK B. SPRAGUE, of Providence, R. I., called attention to the use of atropine for the purpose of fortifying respiration and drying the secretions. He had employed it successfully in three cases.

Professor KILLIAN, in closing the discussion, said that irritation of a foreign body in a bronchus would very probably cause bronchitis or pneumonia, in which event it was important to understand the general condition of the patient, and whether bronchoscopy should be performed. Some cases were so dangerous that the patient would die unless the foreign body was removed; in such cases the method should be continued and the child be given the benefit of possible relief.

Abstracts.

MOUTH.

Roy, J. N. (Montreal).—*Primary Melanosis of the Palate; Naso-buccal Fistula of Recent Sarcomatous Origin.* “Montreal Medical Journal,” November, 1907.

This is an exceedingly interesting case on account of its rarity, the writer having found only two similar cases on record. The patient, a blacksmith, when twenty-three years old, injured his palate slightly with the stem of a clay pipe. One year later he discovered in the medium raphe of the vault a small round spot 3 millimetres in diameter. During the following twelve years this spot increased in diameter to about 6 millimetres. The only symptom was slight roughness of the tongue on pressure. About this time iodine was applied, and pain commenced to appear, which lessened when it was discontinued. The extension of the disease, however, was continuous, pigmentation taking place in the surrounding parts as well as the original site. Four years later all the space within the dental arch of the superior maxilla was filled with melanotic granulations. At the end of another four years, while the general granulation had markedly increased, there was depression of the palate on the left side, due to the formation of a naso-buccal fistula. This was attended by neither haemorrhage nor suppuration.

Examination now revealed melanosis of the entire hard palate. Granulations of a brown or blackish colour were scattered all over, the left side being greatly depressed. At a point between the middle and posterior thirds of the hard palate a probe passed readily into the nasal cavity.

There was no dysphagia, but the voice was nasal, and the pharyngeal reflexes were absent.

Microscopic examination led to a diagnosis of “melanotic sarcoma resembling melanotic endothelioma.”

As the patient positively refused operative measures, the necessary mutilation together with the possible complications and doubtful prognosis being explained to him, the case was allowed to progress, under resorcin and hygiene treatment, toward the inevitable fatal issue.

The writer concludes: "I should like to remark how unusual this case is, presenting a primary melanosis of the palate, without co-existing lesions of the eye or skin, a slow evolution of twenty years, and a recent rapid sarcomatous growth." *Price-Brown.*

NOSE AND ACCESSORY SINUSES.

Downie, Walker.—*Sarcoma of the Nose, with Six Cases.* "Glasgow Med. Journ.," August 1, 1907.

Sarcoma of the nose is rare, and mentioned only briefly in text-books. It grows from the antrum, the ethmoid cells, and the middle turbinal, and comes at any age, as shown by these cases, and in either sex. In some cases it has a characteristic malignant tendency, and in other cases it resembles an ordinary simple polypus or papilloma, and, therefore, a great deal of confusion takes place.

Sarcoma is often not recognised until too late. The following symptoms point to malignancy: (1) Occasional attacks of epistaxis; (2) haemorrhage on touching the growth; (3) severe pain on probing or removing them; (4) deformity of the nose; (5) general loss of weight and health. The *treatment* is to recognise these growths when small and beginning, and to remove them thoroughly with snares, forceps, or the galvano-cautery. But if these growths come from the antrum or frontal sinus, the prognosis is not good unless a very radical operation is done.

Andrew Wylie.

Haseltine (Chicago).—*The Septum Nasi—a Comparative Study.* "The Homœopathic Eye, Ear, and Throat Journal," July, 1907.

The author studies the nose from a developmental standpoint, including the ontogeny and phylogeny of the organ.

The formation of the face may be considered as one of Nature's difficulties of accommodating the size of the anterior portion of the human brain, and the most difficult part of this face building is the formation of the nose.

The nose is a relatively more important organ in many lower animals, but in no animal is the actual relative size of the nasal chambers so great as in man. So one meets with the curious biological paradox of an organ increasing in size but losing function. This can only be explained by regarding the larger nasal space as caused by the widening facial angle due to cerebral growth.

The structure of the septum in man is altogether different from that of the animal; whilst the latter has the septum practically complete at birth in man its formation is largely a post-nasal process. The bony plates which fill the extra space within the facial angle have but a flimsy support, and are subjected to almost constant disturbance of their inter-relations. Hence deformity results.

This theory of faulty union of the bony plates of the septum is supported by clinical observations. Children are free from septal deformity. The posterior border, which ossifies early and without disturbance, is nearly always normal. The anomaly of septal deformity is less frequent in flat-nosed races with less frontal development. *Macleod Yearsley.*

Yearsley, Macleod.—*The Rational Treatment of Adenoids.* “Brit. Journ. of Children’s Diseases,” vol. iv, p. 341.

A strong protest against the so-called “palliative” treatment of adenoids and against imperfect operation. Reviews the literature of tuberculous adenoids and points out the risks run by leaving hypertrophy of the pharyngeal tonsil untouched. Insists upon the importance of *efficient* removal and the discredit brought upon the operation by unskilled and imperfect operators.

Macleod Yearsley.

Bucklin, C. A. (New York).—*Hypertrophic Nasal Catarrh and Complications, with Clinical Illustrations.* “Arch. of Otol.”, vol. xxxvi, p. 398.

This paper is based upon 31,181 operations since 1880. The author considers that hypertrophic nasal catarrh is occasioned by obstruction to nasal inspirations, and states that the vacuum formed within the entire respiratory tract with each forcible nasal inspiration amounts in patients suffering with the condition to about $1\frac{3}{10}\frac{6}{5}$ pounds to the square inch. With this vacuum reduced to about one half, the symptoms of catarrhal diseases and their complications often stop within ten days.

These conclusions, Bucklin considers, can be clearly demonstrated by experiment with the “respirometer” and “displacement vessels,” instruments which he describes, with the method of using them, at length.

In speaking of the complications of hypertrophic nasal catarrh, pulmonary tuberculosis is noted, and Bucklin considers that it is exceptional for tubercle bacilli to infect lungs that are not affected with chronic catarrhal diseases.

A list of the conditions curable by nasal operation is given, including “catarrhal otitis media.” The highly objectionable advice to perform Valsalva’s method of inflation as the only necessary additional treatment is to be strongly deprecated, for reasons well known to every scientific otologist.

The operation recommended appears to be the routine one of removing the posterior and anterior ends of the inferior turbinals, together with any other “nasal deformity.” Everything is done under cocaine and adrenalin with a jeweller’s saw.

Seven cases are given (out of the 31,181) in illustration of the author’s method.

Macleod Yearsley.

Siebenmann (Basle).—*Osteo-myelitis and Deafness.* “Rev. Hebdom. de Laryngol., d’Otol., et de Rhinol.”, July 13, 1907.

Deafness as a sequel to acute septic osteo-myelitis was only represented in medical literature by four instances recorded respectively by Wagenhause, Steinbrügge, Bezold, and Castex, until within the last few years the author met with and reported three new cases of this complication.

The disturbance of the organ of hearing rarely occurs during the acute pyrexial stage of the disease, but most commonly during the period of convalescence, a year or more after its onset. In protracted cases, where many foci have developed successfully at intervals, three years or more may elapse before the deafness is noticed. Both ears are affected, and with rare exceptions at the same time.

In one group of cases the loss of hearing was preceded by subjective

tinnitus which persisted, and later vertigo and nausea appeared. In the other group, the deafness came on either suddenly or gradually without these disturbances.

In most cases the final result was a bilateral deafness, but exceptionally some slight hearing power remained in one ear.

As the result of *post-mortem* examination, lesions were found in the labyrinth similar to those occurring in meningitis complicated by labyrinthitis.

Chichele Nourse.

Bichatou (Rheims).—*The Nasal Treatment of Asthma.* “Rev. Hebdom. de Laryngol., d’Otol., et de Rhinol.,” August 3, 1907.

Admitting the connection between asthma and intra-nasal conditions, which has been recognised by various medical writers even as far back as A.D. 1650, the author discusses the hypotheses which have been advanced to account for it, alluding finally to the views of Francis and his treatment by cauterisation of the tubercle of the septum.

Of four cases of asthma so treated by the author, two were nearly cured while the others received no benefit whatever.

Chichele Nourse.

Broeckaert, J. (Ghent).—*Endothelioma of the Maxillary Sinus.* “Rev. Hebdom. de Laryngol., d’Otol., et de Rhinol.,” September 7, 1907.

An interesting and important paper, read before La Société Française d’Oto-rhino-laryngologie, upon this form of malignant neoplasm, with notes of three cases. The mode of origin and histological characters are fully described, and the symptoms are discussed. The tendency of such tumours is to recur locally after removal, and incomplete removal acts as a stimulus to new growth; the author therefore recommends that any interference should be of the most radical character. He lays especial stress upon the avoidance of any interference with the tumour itself during the operation, for, he says, removal in fragments leads almost inevitably to inoculation.

Chichele Nourse.

De Ponthiere, L. (Charleroi).—*Sarcoma of the Ethmoid; Operation; Cure.* “Rev. Hebdom. de Laryngol., d’Otol., et de Rhinol.,” September 7, 1907.

Notes of a case occurring in a girl, aged twenty. The symptoms consisted of a sensation of tension in the fronto-nasal region, progressive obstruction of the left nostril by a greyish-red tumour, and a foetid, purulent discharge. There were two attacks of epistaxis. The duration of the symptoms was only two or three months. A radical operation was performed in August, 1906. The patient was well and free from any recurrence in May, 1907.

Chichele Nourse.

Menzel.—*Entrance of Fluids into the Frontal Sinus during Forced Irrigation of the Antrum.* “Arch. für Laryngol.,” Bd. xvii, p. 377.

Menzel quotes Lermoyez (“Ann. d. Mal.,” November, 1902) to the effect that this can take place. Menzel’s experiments led him to the conclusion that a direct infection of the frontal sinus in the manner described by Lermoyez, even during the most forcible irrigation of the antrum, cannot take place, because the fluid cannot force its way into the cavity which is already filled with air. He believes, however, that in a few rare cases the fluid can enter that part of the anterior ethmoidal

labyrinth which corresponds to the cell of the bulla ethmoidalis, but suggests that this may lead to infection of the bulla, from which, by continuity, infection of the rest of the anterior ethmoidal, the labyrinth, and eventually the frontal sinus may take place. Menzel advises that instead of a thick, vulcanite cannula, a middle-sized one of about $\frac{1}{2}$ or 1 m. in diameter should be used, and that the pressure exercised should be very moderate, so that the fluid, on its exit from the maxillary ostium, may scarcely go above the level of that opening. *Dundas Grant.*

LARYNX.

Dupond, G. (Bordeaux).—*Double Crico-arytænoid Arthritis with Fixation of Both Vocal Cords.* “Rev. Hebdom. de Laryngol., d’Otol., et de Rhinol.” August 31, 1907.

A man, aged fifty-four, suffering from pulmonary and laryngeal tuberculosis, was attacked suddenly, consequent upon exposure to cold, with dyspnoea and suffocative crises. These symptoms were found to be due to acute arthritis of both crico-arytænoid joints, with fixation of the cords in the median position. *Chichele Nourse.*

Birkett, H. S., and Muckleston, H. S. (Montreal).—*A Case of Perichondritis of the Larynx, occurring during the course of Typhoid Fever.* “Montreal Medical Journal,” August, 1907.

The patient, a Polish labourer, aged twenty-one, was admitted to the hospital with typhoid fever on October 31. The disease ran a severe course. In addition to the usual bronchitis he had repeated attacks of epistaxis, and twice developed broncho-pneumonia. He suffered also from intestinal haemorrhages and subcutaneous abscesses. He was delirious for one week.

Early in December laryngeal symptoms developed, with hoarse voice and noisy breathing. Laryngeal examination revealed acute perichondritis with involvement of crico-arytænoid joints. The left cord was fixed and ulcerated, right one limited in movement; both were oedematous. Steam and benzoin inhalations afforded some relief.

On the sixth day of laryngitis, breathing became stertorous and pulse rapid, with the usual symptoms attendant upon cyanosis. Tracheotomy was resorted to.

The subsequent course was satisfactory with the exception of the laryngeal condition, and the patient was discharged from the hospital 116 days after admission, still wearing the tube.

Six weeks later the laryngeal mirror gave the picture of the vocal cords fixed in adduction, but hidden in their posterior half by a smooth globular mass, which was adherent to the left arytenoid cartilage. The voice was hoarse but intelligible.

As the mass gradually decreased in size during the subsequent weeks, repeated attempts at dilatation were made, but nothing larger than a laryngeal probe could be passed.

On May 20 he was again admitted to the hospital. The vocal cords were found to be adherent in their anterior half, but movable to a limited extent posteriorly. There was also subglottic thickening of the mucosa and narrowing of the lumen of the trachea from granulations along the track of the tracheotomy tube.

Further operation for relief of the stenosis was considered unjustifiable, and it was decided to leave the tube *in situ* for a while at least.

Price-Brown.

TRACHEA.

Martuscelli and Ciociolo (Naples).—*On the Late Effects of Tracheotomy.*
“Bolle. d’Malatt. del Orecchio,” etc., May, 1907.

This is an experimental and histological study. Preliminary researches were made on dogs, and before describing them the authors review the literature of the subject at considerable length. In the description of the experiments, three are given with particular detail, including the results of *post-mortem* examinations and illustrations showing the histological appearances. Their conclusions are that tracheotomy is often the cause of more or less diffuse ulceration, particularly at the sites corresponding to the lower extremity of the cannula and of the tracheal opening; to these changes there may be added the formation of polypoid new growths. The general consequences of tracheotomy are broncho-pneumonia, paralysis of the posterior cricoarytænoids, aphonia, etc.

V. Grazzi.

EAR.

J. Ramsay Hunt (New York).—*Herpetic Inflammations of the Geniculate Ganglion: A New Syndrome and its Aural Complications.*
“Arch. f. Otol.”, vol. xxxvi, p. 371.

An interesting paper. The syndrome—otalgia, herpes zoster of the concha and auditory canal, and Ménière's symptoms—is dependent upon a specific herpetic inflammation of the geniculate ganglion. The simplest expression of this inflammation is to be found in herpes zoster of the tympanum, auditory canal and concha (*representing the zoster zone for the geniculate ganglion*). The proximity of the facial and auditory nerves render neural complications not infrequent—peripheral facial palsy, tinnitus, deafness, and Ménière's complex of symptoms. The pathology of the affection does not differ from that of true herpes zoster. The author briefly reviews the anatomy of the geniculate ganglion and roughly outlines the ganglionic representations of the cephalic extremity. He has collected sixty-one cases of true herpes zoster and defines four clinical types: (1) herpes auricularis; (2) herpes auricularis, facialis, or occipito-collaris, with facial palsy; (3) herpes auricularis, facialis, or occipito-collaris, with facial palsy and hypoacusis; (4) herpes auricularis, facialis, or occipito-collaris, with facial palsy, deafness, and symptoms of Ménière's disease. He enters into these types in detail, discusses diagnosis and prognosis, and gives a short summary of the literature bearing upon the subject. The paper is an important one and should be read in full.

Macleod Yearsley.

Knapp, Arnold (New York).—*Otitic Meningitis.* “Arch. of Otol.”, vol. xxxvi, p. 416.

Uncomplicated otitic meningitis occurs as often after acute as after chronic purulent otitis.

In 29 out of 52 cases it followed bone disease, extending to the dura. This bone disease was at the tegmen in 11 cases, posterior surface, superior edge, or apex of petrous in 16, and in 22 infection was *via the labyrinth*, usually the internal meatus. The figures show that the meninges are first affected in the posterior cranial fossa in three fourths of the cases, and in the middle fossa in one fourth.

Three classes of meningitis occur: serous meningo-encephalitis, encapsulated intra-meningeal abscess, and general purulent meningitis.

No single symptom is characteristic; Kernig's sign is, perhaps, the most constant. Lumbar puncture is a great aid in diagnosis, but the findings are not infallible.

Prognosis is unfavourable, but has become slightly less so through recent progress.

The prospect of successfully dealing with localised intra-meningeal infection depends on the fossa invaded. Thorough elimination of the primary focus of disease is necessary, with free exit for exudation, and the use of the appropriate antitoxin. *Macleod Yearsley.*

Beck, C. J.—*A New Method of Aural Massage.* “New Orleans Med. and Surg. Journ.” July, 1907.

The procedure consists simply in introducing metallic mercury into the meatus, which produces the massage effect by its weight and movement against the tympanic membrane. *Macleod Yearsley.*

Jack and Verhoeff.—*A Case of Chronic Otitis Media; Hæmorrhage into the External Auditory Canal; Perforation of the Wall of the Pharynx, with Fatal Hæmorrhage from the Jugular Vein.* “Boston Med. and Surg. Journ.” clvii, p. 17.

The patient was a girl, aged two and a half. Ill two weeks; discharge from right ear several days, post-aural swelling one week. On examination, coagulated blood found in meatus. Severe hæmorrhage from mouth and nose two hours after admission. Treatment by adrenalin and normal salt solution subcutaneously and artificial respiration unsuccessful.

Post mortem, the soft tissues surrounding the carotid artery and jugular vein beneath the petrous were infiltrated with blood from a large extravasation. This communicated with the pharynx a little below the mouth of the Eustachian tube. It also communicated with the lumen of the meatus at the margin of its bony portion. The tympanic membrane was intact, but retracted and united to the promontory. Exudate, but no blood, in tympanum and Eustachian tube. Ossicles *in situ*. Several small polyps attached to tympanic wall. Attic and mastoid cells filled with exudate, but bony tissue not necrotic. Carotid artery intact. Histological examination showed condition due to *Streptococcus pyogenes*. No other bacteria to be seen. *Macleod Yearsley.*

Brock, W. (Erlangen).—*Researches on the Function of the Semicircular Canals in Health and in Deaf-mutism.* “Arch. f. Ohrenheilk.,” Bd. 70, Heft 3 and 4.

After a historical review of the whole subject of the function of the semicircular canals, the author addresses himself to the interesting question of the presence or absence of ocular twitch-movements (the so-called “after-nystagmus”), and of vertigo in the deaf and dumb. Bezold, Denker, Wanner, and Haszblauer, the previous writers on this subject,

have shown that in those deaf-mutes in whom hearing is absolutely abolished, the various physiological phenomena referable to the semicircular canals are also in abeyance; while, on the other hand, in those deaf-mutes in whom some traces of audition still remained, we not infrequently find also evidence of the persistence of the semicircular functions. While the results of these older investigators agree in the main, a considerable discrepancy exists in the actual percentages presented. Thus the number of cases in which nystagmus is reported as absent varies from 13·9 per cent. (Bezold's first results) to 49·4 per cent. (Haszblauer). Frey and Hammerschlag, in an endeavour to explain these differences, surmised that they were to be accounted for by the fact that although deaf-mutes occur in two classes—(1) those with congenital, and (2) those with acquired deafness—yet the various authors had failed to separate these classes in carrying out their tests, and so had vitiated their results. They themselves found that in the acquired group nystagmus occurred in 26·7 per cent. of the cases, and in the congenital group in 64 per cent. Brock, however, is very doubtful both of their surmise and of their findings, since his own researches and his analysis of the case-groups reported by the earlier authors show that the discrepancy is rather to be sought for in the failure to segregate the cases which were totally deaf in both ears from those in which one ear retained a remnant of the auditory function. Naturally the former group supply most of the negative cases, while in the latter group, as some amount of the equilibrating function remains intact, the percentage of negative cases is not nearly so high. He also finds, in opposition to Frey and Hammerschlag, that vertigo and nystagmus are most frequently absent in the acquired and not in the congenital cases. And this agrees with the circumstance that the congenital group manifests only a few examples of bilateral total deafness. Brock likewise reports some experiments made after the method of Barany, which consists in pouring into the external auditory meatus fluid of a temperature higher or lower than that of the body, whereby what is known as "caloric nystagmus" is induced, if the semicircular system is normal. Brock considers this method as likely to give more accurate results than the old rotation method, especially in those cases where one ear differs from the other.

The most weighty of the author's conclusions are as follows: Total bilateral deafness is in most cases acquired after birth; nystagmus is most frequently absent in cases of bilateral total deafness; it is probable that stimulation of the nerve-endings in the canals is caused both by the movement of the endolymph from the smooth end of the canal towards the ampulla, and also by its movement in the opposite direction.

Dan McKenzie.

Frose, A. (Halle).—"A further Contribution to the Experiences obtained in the Treatment of Middle-ear Suppuration by means of the Passive Hyperæmia Method of Bier." "Arch. f. Ohrenheilk." Bd. 71, Heft 1 and 2.

Of the eighteen cases treated by the author and reported in this article in full detail, all save two were "acute" or "sub-acute." In fifteen of the total number obvious signs of mastoiditis were present when the patients were first examined, and no fewer than five of these underwent operation some time after the Bier treatment was started. Further, fifteen of the patients were children and only three adults. Thus the title of the paper gives but a very imperfect idea as to the actual nature and value of the experiment.

Method.—An elastic band, 2 to 3 cm. in breadth, protected by cotton-wool and furnished with hooks and eyes, was fastened round the neck as tightly as possible consistent with comfort and safety. This was worn continuously, with a daily interval of a few hours, for from eight to thirty-four days in the different cases. In some instances, also, the aspirating-glass was utilised, and seemed to be of service in evacuating mastoid abscesses, etc.

Results.—In general, the author does not seem to be enthusiastically in favour of the treatment. He found, indeed, that some cases seemed to be really injured by its employment, a result he ascribes to the anatomical conformation of the mastoid antrum and cells, and to the lack of dilatability of the osseous capillaries in the Haversian canals. He thinks, however, that some benefit was obtained in mastoiditis in which a mastoid abscess was present. The treatment should not be adopted in tubercle, cholesteatoma, osteo-sclerosis or caries. *Dan McKenzie.*

Botella, Dr. E. (Madrid).—*Sarcoma of the Middle Ear; Operation; Cure.*
“Boletin di Laryngologia, etc.,” Madrid, June, 1907, p. 60.

This case occurred in a woman, aged forty-three. The diagnosis having been confirmed microscopically the growth was removed on December 19, 1905, by means of a sharp spoon. The haemorrhage was very profuse, but controlled by copious applications of hydrogen peroxide and adrenalin. The facial canal was found eroded by the tumour, which was attached to the margin of the aditus. The author discusses the history and pathology of these sarcomas at considerable length, and gives extracts from the reports of previous cases.

James Donelan.

Tanturri, Professor D. (Naples).—*Grave and Rapid Endo-cranial Complications in a Case of Acute Purulent Otitis Media; Operation; Cure.*
“Boll. Orecchio, Eolo, Naso,” Florence, July, 1907.

This case is interesting not only on account of the successful result of the extensive operation performed, but as illustrating the dangers that may arise from want of care in prescribing nasal douches.

The patient, a girl, aged twelve, was advised to use a large syringe in applying a douche for naso-pharyngeal catarrh. After the second douching she had acute right otitis media. When she passed under the care of the author she was comatose, with ocular paralysis (abducens), Cheyne-Stokes' respirations, hyperpyrexia and indicanuria. Abscess in middle cranial fossa was found in addition to suppuration in mastoid antrum and cells. Patient made a good recovery with normal hearing on affected side. *James Donelan.*

Goldsmith, Perry G. (Toronto).—*A Case of Primary Bilateral Mastoiditis.*
“Montreal Medical Journal,” October, 1907.

The writer in this case uses the term “primary,” to indicate that the mastoiditis originated *per se*, and not within the tympanum, neither the right nor the left middle ear being affected. Hence, when the operation upon the two mastoids was successfully done, the drum membrane on neither side was touched.

As the indications were not very positive, the first operation, which was on the right side, might be considered as exploratory. The diagnosis, however, was at once confirmed, creamy pus being found within a very short distance of the surface, the mastoid being of the diploic type.

There was not much breaking down of the intercellular walls, but extensive involvement of the cells. An extra-dural abscess was found, but there was no thrombosis of the sinus.

The operation on the left side was similar to that on the right side, with the exception that while creamy pus was abundant there was no extra-dural abscess.

The recovery was gradual and the restoration of hearing almost normal.

Price-Brown.

Royce, Gilbert (Toronto).—*Suppurative Mastoiditis: its Diagnosis and Treatment.* “The Canadian Practitioner and Review,” September, 1907.

In an exhaustive article in which the writer covers very thoroughly these two domains in suppurative mastoiditis, he lays particular stress upon several points that are worthy of note. Placing a hand over each mastoid and pressing each alternately, meanwhile watching the face of the patient for signs of distress, he has found of great value.

While in many cases the pain is most severe at the tip of the mastoid, in the so-called “pneumatic mastoid” the pain is equally severe over the entire surface of the bone, whereas in cases where the cortex is thick and dense, the pain may be slight or even absent.

Another point dwelt upon is the slightness of pain, yet abundance of purulent discharge and destruction of bone tissue, in cases where the infective organism is *Streptococcus mucosus capsulatus*.

Swelling of the mastoid tip, extending down the neck, is a characteristic of the Bezold perforation, in which the pus has burrowed through the digastric groove and found its way into the tissues of the neck.

One of the most valuable diagnostic signs he believes to be the sagging of the postero-superior wall of the external auditory canal near the drum, as it indicates a suppurative process in the bone, and must not be confounded with circumscribed otitis externa.

Of germs found in the discharges, streptococcus and pneumococcus are the most malignant as well as the most purulent in character. The staphylococcus discharges are milder and often mucoid or stringy.

The writer quotes Deuch as saying that 99 per cent. of all cases of suppurative mastoiditis owe their origin to pre-existing purulent otitis media.

Price-Brown.

Goldsmith, Perry G. (Toronto).—*A Case of Acute Suppuration of the Mastoid; Septic Thrombosis of the Lateral Sinus; Operation, including Resection of the Jugular Vein; Recovery.* “Canadian Journal of Medicine and Surgery,” September, 1907.

Miss A. K.—, aged twenty-seven, had first an attack of acute, purulent, otitis media, extending over a period of four or five weeks. It was accompanied by free discharge of pus, pain radiating over the right side of the head from behind the ear, and considerable rise in temperature. Subsequently, she had several severe exacerbations of fever, preceded by chills, and followed by profuse perspiration. Vomiting also occurred. Pain over the mastoid varied in intensity, but sometimes became very severe. The discharge increased in amount. There was no oedema or stiffness in the neck.

Operation was decided upon, and on opening the mastoid it was found to be full of pulsating pus, indicating exposure of the dura. All

diseased bone was removed and the lateral sinus thoroughly exposed. The posterior bony wall of the external auditory canal was then taken away, *not including the bridge*. The lateral sinus was not opened.

For twenty-four hours the patient progressed favourably. Then there was a marked chill, temperature rising to $104\frac{3}{5}$ ° F., and pulse to 148, with profuse sweating.

Lateral sinus thrombosis with infection through the jugular vein was suspected, and further operation decided upon.

Under general anaesthesia again, the lateral sinus was now opened, and a semi-fluid, yellowish clot removed. The bone was also taken away for about an inch and a half upwards and backwards; the jugular vein was likewise tied above the inner end of the clavicle and below the facial where it enters the jugular, the intervening piece being removed.

For some time progress towards recovery was slow. In treatment there was no irrigation, but the healing was uneventful. The discharge has ceased entirely, and the hearing is reported as normal, due, the writer believes, to having followed out Heath's method of retaining the bridge.

Price-Brown.

Cheval, V.—*Wound of the Meninges, the Brain, and the Left Lateral Ventricle by a Foreign Body pushed through the Ear; Meningitis; Operation; Recovery.* “La Presse Oto-laryngologique Belge,” August, 1907.

A communication to the Belgian Society of Oto-rhino-laryngology.

A little boy was held down by four others while a fifth pushed the metal rib of an umbrella into his left ear. The following day his mother observed a flow of blood from the ear, and two days later he was seen by the author. The meatus was filled with blood-clot, and there was a perforation, closed by a clot, in the posterior part of the membrana flaccida. The movements of both eyes were normal. The body temperature was 39.7° C.

The following day, the fifth after the injury, convergent strabismus of the left eye appeared; the patient was very restless and the temperature high. There was no optic neuritis. Examination of the blood showed 11,500 white corpuscles per c.mm. Polynuclears (neutrophiles) 69 per cent., lymphocytes 25 per cent., mononuclear cells 6 per cent., eosinophiles and basophiles absent. The cerebro-spinal fluid contained a few red corpuscles, and very abundant white corpuscles, consisting of lymphocytes 52 per cent., polynuclears 44 per cent., and transitional forms 4 per cent. The remains of endothelial cells were also recognised. Some white corpuscles showed a granular fatty degeneration, and the form of the polynuclear cells was much altered. Cultures on agar, serum agar, and bouillon remained sterile.

On the seventh day the symptoms continued unrelieved. There was restlessness, headache and paralysis of the sixth nerve. An exploratory operation was performed.

A large opening was made through the squamous portion of the temporal bone, the superior wall of the meatus extensus, and the roof of the tympanic cavity. A perforation of the petrous bone was found, which corresponded with a tear in the dura, of which one of the veins was thrombosed. A grooved probe passed easily backwards and inwards for several centimetres.

The brain was not pulsating, and seemed to be the seat of considerable hyper-distension. The thrombosed vein led to an extensive area of

pachymeningitis, near the tip of the petrous bone. Some suspicious fluid, which had accumulated at this point, was evacuated. No collection of pus was found. The author deliberately punctured the left lateral ventricle, from which issued a turbid fluid, and at this moment the cerebral pulsations reappeared. The tract was drained by a piece of iodoform gauze, extending as far as the ventricle.

The upper part of the wound was sutured, and a light dressing applied. The following day the temperature had fallen to normal, and the ocular paralysis had disappeared.

Four days after the operation the cerebro-spinal fluid no longer contained cellular elements. The drain was no longer inserted into the ventricle.

Progress was uninterrupted, and the patient was discharged cured six weeks after the operation.

Chichele Nourse.

Violet (Paris).—*Cases of Deafness of Syphilitic Origin and their Treatment.* “Gaz. des Hopitaux,” 1907, No. 79.

The author describes four cases. In the first tinnitus and vertigo had lasted for three years, the noises being most marked on the left side and the patient tending to fall towards that side. The hearing had diminished during the last two months. Rinne's test was positive on both sides, and the patient occasionally heard false notes. The specific infection dated from seven years previously. Under treatment by means of mercurial injections the hearing became nearly normal in three months' time. She had received eight injections of 25 mgm. each of perchloride of mercury in two courses with two months' interval. The second was a case in which deafness came on during the second stage; considerable improvement took place after the fourth injection of the perchloride. In the third case the deafness came on four months after the infection. Rinne's test was negative on both sides, and there were numerous mucous patches present; in this case the deafness was probably in great measure attributable to the local changes in the Eustachian tubes. The fourth was a case of bilateral deafness with Argyll-Robertson pupils and had lasted for five years. The length of time intervening between the infection and the deafness was not made out. Rinne's test was slightly positive in both ears, and the air conduction was worse for the lowest pitched tones. The improvement in this case was moderate. The writer points out the necessity of vigorous treatment with as little delay as possible. The injections, he says, consist of bichloride of mercury one half, chloride of sodium and crystalline phenol of each two parts, sterilised distilled water 200 parts, the dose injected being 20 c.cm. for the male adult. This is injected into the muscles of the gluteal region at four fingers' breadth behind the line adjoining the antero-superior spine of the ileum to the upper margin of the great trochanter and at four fingers' breadth below the level of the iliac crest.

Dundas Grant.

Pierce, N. H. (Chicago).—*The Present Status of the Question of Progressive Spongification of the Labyrinthine Capsule (Oto-sclerosis).* “Arch. of Otol.,” vol. xxxvi, Nos. 1 and 2.

The author gives a very clear statement as to the pathology of ankylosis of the stapes, and discriminates three important groups which much resemble each other—the ankylosis spuria membranacea, produced by simple inflammatory changes; the temporary fixation of tubal origin;

and the spongifying process in the labyrinthine capsule. The functional diagnostic tests, including particularly the raising of the lower limit of audition, are described in addition to Bezold's trial. He quotes with approval Gellé's deductions: (1) negative Rinne with negative Gellé permits the exclusion of nerve involvement; (2) positive Rinne with positive Gellé indicates nerve deafness; (3) positive Rinne with negative Gellé affords strong presumptive evidence of stapes fixation and nerve involvement (the first and the third are less obvious than the second and must be interpreted in the light of the other accompanying phenomena).

Dundas Grant.

Smith, S. MacCuen (Philadelphia).—*Our Faulty Methods of Brain Localization in Intra-cranial Lesions Complicating Aural Diseases.*
“Arch. of Otol.” vol. xxxvi, Nos. 1 and 2.

Instructive cases from the literature and from actual observation are narrated, showing the difficulties in diagnosis. In one case with the symptoms of cerebral abscess none such was present and the symptoms were found to be due to uræmia. In another the clinical evidence suggested sinus thrombosis, but operative exploration revealed a temporo-sphenoidal abscess with an inadequate fistula as the actual disease present. The importance of operative interference for purposes of diagnosis as well as treatment seems the obvious deduction.

Dundas Grant.

Hinsberg, V. (Breslau).—(1) *On the Significance of the Operative Findings for the Diagnosis of Purulent Inflammation of the Labyrinth during Exposure of the Middle-ear Cavities.* (2) *Indications for Opening a Purulently Affected Labyrinth.* “Arch. of Otol.” vol. xxxvi, No. 3. (Translated by Arnold Knapp from “Zeits. f. Ohrenheilk.” vol. lii, Nos. 1 and 2, 1906.)

(1) The chief spots for examination are the two windows, the promontory and the horizontal semicircular canal, rarely the other semicircular canals. In examining the oval window granulations should not be curetted, but removed by means of fine forceps. This is followed by careful ocular inspection followed, if unavoidable, by probing. Cases are quoted to prove that the labyrinthine suppuration accompanying a fistula of the external semicircular canal may be quite circumscribed. On the other hand, perforation through the window or the promontory is always associated with extensive destruction in the labyrinth. Signs of irritation or defect in the vestibular system should be sought for by examination of each patient, before operation, by von Stein's method.

(2) The operation is always necessary when an exact functional examination and the conditions found on exposing the middle-ear cavities show us that extensive disease of the labyrinth is present. It is best to wait if functional examination and the mastoid operation point to circumscribed disease of the semicircular canal, or if at operation a labyrinthine fistula cannot be definitely proved, but to operate secondarily if the symptoms of irritation which were present before the operation do not quickly disappear, or if these should appear first after the operation on the middle ear. The suspicion that an endocranial complication is present or threatens indicates the opening of the diseased labyrinth. The formation of sequestra in the labyrinth is an indication for operation.

Dundas Grant.

REVIEWS.

Die chronische progressive Schwerhörigkeit, ihre Erkenntniss und Behandlung [Chronic Progressive Deafness; its Diagnosis and Treatment]. By Dr. AUGUST LUCAE, Privy Medical Counsellor and Professor in the Royal Frederick William University in Berlin, with 25 figures in the text and 2 plates. Berlin: Julius Springer, 1907.

Professor Lucae's retirement from official life has been, in one sense, a fortunate event for the student of otology, as it has enabled him to find time to embody in an interesting and exhaustive work the results of his experience in regard to chronic progressive deafness, as such. He particularly insists on the manifold forms of the processes from which this arises, such as the post-catarrhal, the post-otitic and adhesive, the sclerotic and the accommodative. He discusses the pathological anatomy with considerable fulness, and expresses the opinion that in by far the greatest number of cases we have to do with those changes which eventuate in fixation of the ossicles (ankylosis of stapes) which generally run a latent course and which are found most frequently in the middle ear, more rarely in the capsule of the labyrinth. He considers that the changes found are in most instances attributable to inflammatory processes in the mucous membrane of the middle ear.

He has found in 67 per cent. of his cases evidences of exhausted catarrhs and inflammations, and in only 33 per cent. pure sclerosis without changes in the tympanic membrane. He does not consider heredity as a characteristic feature of sclerosis. Along with the generally recognised symptoms he refers with particular emphasis to that of "hearing without understanding." The author's observations have taught him that nervous depression (sadness) engenders deafness. The modes of physical examination receive careful description and critical analysis. In regard to Weber's test, as well as Schwabach's, Professor Lucae attributes increase of "bone-conduction" to the rise in intra-labyrinthine pressure, not to the obstruction to the escape of sound waves as taught by Mach. In testing the hearing he has very ingeniously endeavoured to check the estimation of the loudness of the tone uttered by the use of a "phonometer," which registers the force of the expiratory blast, this being taken as an index of the intensity of the sound. He holds that inability to hear a tuning-fork should not be registered unless it has been tested with the appropriate resonator, and that this condition should always be fulfilled before accepting the diagnosis of "gaps" or "islands" in the labyrinthine scale. He is particular as to the fork used for testing bone-conduction, avoiding very high and very low ones, and selecting by preference the *c* fitted with a spring hammer to ensure uniformity of stroke. He attaches value to a method of examination he published many years ago, namely the eliciting of the proper tone of the meatus by blowing into it through a small india-rubber tube, the tone being abnormally high when the membrane is too rigid. The chapter on the differential diagnosis of the various processes giving rise to chronic progressive deafness is of the utmost practical interest, though admitting of a little more artificial schematisation.

The author protests against too great readiness to give a hopeless prognosis, and offers encouragement towards perseverance in therapeutic effort. The various modes of treatment are given in considerable detail and the results of their use are set forth as tested by actual personal

experience. It is interesting to find that the thiosinamine (or fibrolysin) treatment, and even the over-rated (and now under-rated) pilocarpine, have been found to have their place. Thyroid was found useless and occasionally injurious, phosphorus harmless, but of no perceptible value. The chapter on the general management of patients suffering from chronic progressive deafness is full of valuable practical suggestions, the author giving throughout the reasons for the faith that is in him.

One of the most original chapters is the one dealing with the "accommodative" form of chronic progressive deafness depending upon disturbances in the action of the tensor tympani and stapedius, the former acting as its name indicates, the latter producing a distinct relaxation of the membrane. Tension is necessary for the hearing of the "powerful" tones conveyed through the ossicles; relaxation, on the other hand, for "weak," very high ones, conveyed through the intra-tympanic air to the fenestra rotunda. Professor Lucae divides the accommodative cases into two groups accordingly, and recommends treatment by means of incisions through the tympanic membrane, dividing in the one group the circular fibres (radial incision) and in the other the radial (circular incision). The latter incision is followed by a visible retraction of the membrane.

The work as a whole is full of instruction and suggestion and requires careful study. Many readers will only be able to digest a portion at a time, and probably this is how it can be studied to the best advantage, even by those who are versed in the conventional aspects of modern otology. It is to be hoped that it will soon be translated into English, or, at all events, into French, a language in which some of the profounder German works, among which this must be classed, are made more easily intelligible to the British mind. It will occupy a lasting place as a classic in the pathology of the ear as an organ of hearing, an aspect of its study which in many works is less in the foreground than could be wished.

Dundas Grant.

Diseases of the Ear. HUNTER TOD, M.A., M.B., B.C., F.R.C.S.
Oxford: Henry Frowde. London: Hodder & Stoughton, 1907.

In a volume of 317 pages, Mr. Hunter Tod gives a practical account of the diseases of the ear, suitable both for the student and for the practitioner, because, on the one hand, it is so compact that it is not too long for the student to read, and it is sufficiently detailed for the practitioner to find it a very safe guide in his professional work.

It begins with an *exposé* of the fundamental principle which is of so much value in practice, that the organ of hearing should be looked upon as consisting of a conducting and a perceptive portion. The examination of the ear is clearly described and well illustrated. It is stated that in the young child a good view of the whole length of the meatus can often be obtained by pulling the tragus forward with the finger of one hand and the auricle backwards with the other. To this we think it might well be added that in the infant it is advisable to pull the lobule of the ear downwards, as thereby the difficulty described by the writer of getting a deep view of the tympanum in an infant under four weeks of age is to a great extent overcome (p. 11). The "points to notice" in connection with the use of the speculum are admirable (p. 12). The diagnosis between cerumen and cholesteatoma (p. 15), although referred to, might have received still greater detail in view of the vital importance of the distinction. The author has very rightly devoted a considerable amount of space to the treatment of foreign bodies in the meatus. His warning

against operative interference in cases of congenital bony atresia (p. 31) is well founded. We fully agree with him that acute myringitis is a primary disease to be met with clinically, although some authorities deny the possibility of the occurrence (p. 53). He wisely underlines the statement (p. 62) that "it is impossible to emphasise sufficiently the importance of treating acute inflammations of the middle ear in the earliest stages." If this were more constantly done, probably there would be less frequent call for the operations which are so often necessary for the saving of life, and which occupy so much space in all the modern textbooks on otology. The tests for hearing are exceptionally well described, and the author has taken the trouble to give a list (p. 65) of words which may be used for these tests; such a list is often only acquired by the practitioner with some trouble. By way of paying honour to whom honour is due, the tuning-fork test for bone conduction is named, as is usual in Germany, after Schwabach. This is one of the few works in which the fact that in unilateral deafness of internal ear origin, Rinne may appear negative (p. 69), a point which cannot be too clearly kept in mind. Considerable diagnostic importance is attached to Gellé's test, and we think with advisability (p. 70). The author considers the indication for bougies and electrolysis for Eustachian tube obstruction as extremely limited (p. 109). We would subscribe to this view in regard to the latter, though only in a modified way to the former, but it is very rightly pointed out (p. 105) that bougies should only be employed by experts. Massage is described somewhat shortly, as practised by the pneumatic masseur and also by Lucae's spring probe, the indications for their use being very clearly set forth (p. 111). The important principle in the treatment of chronic middle-ear catarrh is "that each course of treatment should be limited and stopped as soon as the maximum amount of improvement has been obtained" (p. 119). This sentence is very properly underlined. The statement with regard to oto-sclerosis "that (p. 121) the aetiology is uncertain" will be generally accepted even by those who are striving most keenly to arrive at it. The statement that in the later stage of oto-sclerosis Rinne's test may be compositive, though greatly shortened (p. 122), is, we think, open to question, it being doubtful whether the normal relation of air to bone conduction can be restored, depending, as it does, upon the state of the conducting apparatus. The loss of hearing for the high notes is, as pointed out, of the greatest diagnostic value. The methods of treatment of acute middle-ear suppuration are fully and clearly described, the dry gauze treatment being very highly advocated, but there is no doubt, as the author points out further, that the wet method is frequently the only one which is possible for the patient to carry out. He is opposed to the insufflation of powders, which, however, he finds very valuable in some chronic conditions. While acknowledging the difference of opinion as to the advisability of inflation, he prefers not to inflate the ears until the acute inflammation within the tympanic cavity has subsided. Probably even the strongest advocates of inflation will agree that at all events when it causes pain it should be avoided. The chapter on chronic suppuration of the middle ear is one of the most important in any work on otology. The use of the syringe is rather discouraged (p. 165), and the dry method of treatment is recommended if it has to be carried out at the patient's home (p. 167). As this involves mopping out with pledgets of wool which must have been fingered before use, we question whether the objections to the former are greater than to the latter, always excepting cases of cholesteatoma, in which syringing is decidedly injurious, as indicated

usually by the production of vertigo; no doubt with cleanliness the objection is reduced to a minimum. Neumann's application of Schleich's method of producing local anaesthesia is fully described (p. 171). It is pointed out, however (p. 172), that sometimes the pain on injection is so great that the patient refuses to permit of its continuance. The anxieties and dangers connected with the removal of aural polypi are very properly emphasised (p. 173), it being pointed out, however, that in the most disastrous cases the polypus had not been removed in a careful manner, but either by forcibly extracting it with a pair of forceps or by blindly curetting the ear. The operation of ossiculectomy is very properly alluded to as occupying a place in aural surgery, the indications and the contra-indications being most judiciously described (pp. 175-176). We should be disposed to attach more value to the trichloracetic acid method of closing perforations (p. 181), and to the value of contractile (not flexible) collodion for fixing relaxed membranes (p. 182) than the author is disposed to allow. The anatomy of the mastoid process is well described and the symptomatology will be found very clear. The illustrations of Schwartz's operation for opening the antrum will be found most helpful, although in them the "triangle" is a little larger than it would be safe to make it in cases of advanced lateral sigmoid sinus. He is very properly in favour of removing a portion of the posterior and upper wall of the bony meatus so long as the tympanic cavity is not injured and the ridge of bone forming the outer wall of the aditus is left intact (p. 208). The radical mastoid operation is also excellently illustrated, and particular stress is laid upon the modification of it devised by Jansen in 1900, in which the ossicles and membrane are left intact. The intra-cranial diseases of otitic origin are described in words with great clearness, which is considerably increased by the excellent schematic diagrams with which the chapter is illustrated. The question of ligation of the jugular vein is thoroughly and thoughtfully discussed, and while we think we are right in assuming that the author is a strong advocate for its performance, he states (p. 256) that "the jugular vein should only be ligatured if it is impossible to obliterate the sinus below the thrombus in those cases in which the symptoms point to the onset of a general infection of the circulation." All will agree with him that the general condition of the patient is, at all events, of as great importance as the local condition found on examination. Those who have ligatured the vein will agree with him that the mere ligation is a simple procedure (p. 257), but the decision as to its necessity is far from simple in view of the disturbance of circulation which unquestionably takes place as its result, and which must be carefully weighed in the balance as against the advantages which accrue from it. There is no doubt with regard to the ligation of the jugular vein, that many cases recover as the result of this operation which would otherwise have died (p. 259). The diseases of the internal ear are crowded into fourteen pages, and perhaps if what we know for certain with regard to them were to be our standard, it is possible that he has allowed sufficient space. On the other hand, there are many questions with regard to these diseases, which, if not exactly settled, still come within the range of diagnostic probability, that a fuller consideration would have been of value. Probably in the next edition, which is sure to be soon called for, this chapter will be amplified.

From what we have so far said, it will be obvious that the few suggestions for improvement indicate how very little room there is for change in the book, which will certainly take its place among the very best and most up-to-date works on the subject.

Dundas Grant.

INDEX TO VOLUME XXII, 1907.

	PAGE
ABERCROMBIE (Dr. P. H.), tuberculoma of the naso-pharynx, with report on same	70
— adenitis	127
— thyrotomy performed for intrinsic laryngeal malignant disease	182
— — — — a further case	184
— tuberculoid disease of the left tonsil	185
Abscess, brain- (Cowen, New York)	146
— of the right frontal lobe (W. Milligan)	166
— of the larynx (G. R. Crawford)	230
— extra-dural (Charles G. Lee)	261
Achondroplasia (Dr. Scanes Spicer)	57
Acute suppuration of the mastoid (Percy G. Goldsmith)	661
Adenitis (Dr. P. H. Abercrombie)	127
Adenooids : observations in 1000 operations (F. B. Sprague)	35
— new method of removing (Otto T. Freer)	226
— removal of (Dr. George L. Richards)	333
— the rational treatment of (Macleod Yearsley)	654
Adherent soft palate (Mr. H. Betham Robinson)	351
Adrenalin, the use of, to define new growths and infiltrations (St Clair Thomson)	401
ALT (Dr. F.), the treatment of suppuration of the attic	48
ALTHOFF (E.), endotheliomata of the interior of the nose	230
Alypin, use of (A. Raoult and P. Pillement)	237
AMBERG (Emil), otitis interna sinistra haemorrhagica	144
American Laryngological Association : Twenty-ninth Annual Congress	331, 406, 456
— Thirtieth Annual Session	596
Anaesthetics, their uses and administration (Dudley Wilmot Buxton)	371
Anatomy, manual of (Alexander M. Buchanan)	480
Angeioma of the nose (Streitt)	140
Antrum disease, chronic, the treatment of (R. H. Johnston)	545
Aphemia (H. J. Davis)	210
Asepsis in the routine office work of the laryngologist, a problem in (Dr. Thomas Hubbard)	332
Asthma, a remedial inhalation for (A. Einhorn)	474
— the nasal treatment of (Bichatton)	655
Attic, suppuration of (Dr. F. Alt)	48
Auditory canal (external) abnormally short (L. A. Lawrence)	29
Aural massage, a new method of (C. J. Beck)	658
Austrian Otological Society, proceedings of	45, 467
Autoplasty for a cicatricial orifice (Paul Laurens)	160
AVELLIS (G.), shape of ventricles in singer's larynx	88
— laryngeal air-sacs in man	606
BACON (Gorham) and BLAKE (C. J.), a manual of otology	92
BALL (J. B.), cyst in floor of right nasal passage	49
— laryngeal disease (? syphilitic)	117
— laryngeal syphilis	250

	PAGE
BARR (J. Stoddart), purulent ear disease	90
— otitic septic thrombosis, and report on same	96, 99
BARANY (Vienna), demonstration of two cases	46
— reflex ocular movements	475
BARNES (H. A.), prophylaxis of post-operative diphtheria	316
BARWELL (H.), case of gumma of larynx	72, 84
— tuberculous ulceration of the pharynx	83
— ulceration of tonsil	134
— laryngeal tumour	190
Basis crani, fracture of the (W. Lange)	609
BECK (C. J.), a new method of aural massage	658
BEZOLD (Munich), the functional examination of the hearing with tuning-forks in menolateral deafness	89
BICHATON (Rheims), the nasal treatment of asthma	655
Bifid growth springing from a larynx	253
Bilateral abductor paralysis of larynx (Dr. Charles H. Knight)	456
BIRKETT (H. S.) and MÜCKLESTON (H. S.), perichondritis of the larynx	656
BLAKE (C. J.) and BACON (Gorham), a manual of otology	92
— and REIK (H. O.), operative otology, surgical pathology, and treatment of diseases of the ear	90
BOENNINGHAUS, bilateral cerebral disturbance of hearing with aphasia	236
— theory of sound-conduction	607
BOISVEIL (Dr.), stuttering cured by operation	470
BOND (J. W.), preliminary laryngotomy	278
BOOTH (J. Mackenzie), teaching of ear and throat classes	93
BOSVIEL, glass syringe for irrigation of the ears	156
BOTELLA (Dr. E.), sarcoma of the middle ear	660
BOWEN (W. H.) and LAKE (R.), malignant disease of the external meatus	22
Brain-abscess (Alfred Wiener)	234
Brain localisation in intra-cranial lesions complicating aural diseases (S. MacCuen Smith)	664
BRANDEGEE (New York), pulmonary thrombosis, death from	146
British Laryngological, Rhinological, and Otological Association, proceedings of	63, 182, 357
— review of the history of	318
British Medical Association: Seventy-fifth Annual Meeting	151
— meeting at Exeter	374
— proceedings of	587
British Sanatoria, annual description of	420
BROCK (W.), researches on the function of the semi-circular canals in health and in deaf-mutism	658
BROECKAERT (J.), endothelioma of the maxillary sinus	655
Bronchus: foreign body removed from the left bronchus of a male (Dr. D. R. Paterson)	179
— foreign body in the left (L. Hirschland)	232
BRONNER (Dr. A.), enucleation of enlarged tonsils	249
BROWN (Price-), the spittoon as a sialogogue	406
BRYANT (New York), operation for recurrent middle-ear suppuration and mastoiditis	88
BRYANT (S.), preservation of hearing	279
BRYANT (W. Sohier), conservation of hearing in operations on the mastoid	204
BUCHANAN (Alexander M.), manual of anatomy	480
BUCKLIN (C. A.), hypertrophic nasal catarrh and complications	654
BURGER (H.), dermoid cyst of base of nose	140
BURROUGHS WELLCOME & Co., "Elixoid"	240, 280
— therapeutic preparations	483
BUTLIN (H. T.), preliminary laryngotomy	279
BUXTON (Dudley Wilmot): anaesthetics, their uses and administration	371
Canals, semi-circular, in health and in deaf-mutism (W. Brock)	658

	PAGE
Cancer of the larynx (D. C. Greene)	415
— of the fauces, inoperable (Dr. Scanes Spicer)	180
— of larynx and pharynx (Dr. Scanes Spicer)	180
Cannula tracheotomy in right bronchus (M. Jaboulay)	143
Carcinoma of the larynx (Dr. E. Fletcher Ingals)	462
— (primary) of the inferior turbinated body (W. W. Carter)	228
CAROLO (Irene San), the common-sense of voice-development	91
CARTER (W. W.), primary carcinoma of the inferior turbinated body	228
CASSELBERRY (William E.), laryngeal tuberculosis	473
CASTEX (M.), diffuse swelling on the posterior wall of the naso-pharynx and pharynx	159
— epithelioma at the base of the tongue	159
— laryngeal tuberculosis in a girl	159
— tuberculosis of the larynx	159
— old nervous aphonia	159
— large polypus	159
— slight epistaxis	159
— facial paralysis	159
CASTEX (Dr.), haematoma of the auricle	470
Catarrh, hypertrophic nasal (C. A. Bucklin)	654
Catarhal deafness (chronic), diannin in (A. Randall)	548
CATHCART (G. C.), a laryngeal cyst in arytaeno-epiglottidean fold	55
— complete abductor paralysis	55
— fibroma of larynx	121
— ulceration in interarytaenoid space	55
CAUZARD, nasal obstruction and swelling of the left cheek	158
Cerebellar abscess (A. L. Whitehead)	108
— (W. Milligan)	198
— (L. B. Rawling)	236
— a fatal case of (Chichele Nourse)	110
Cerebral abscess (Thos. H. Pinder)	244
— and meningitis (Chichele Nourse)	359
Cerebro-spinal meningitis (C. F. Withington)	144
Cervical glands and larynx, malignant disease of (Chichele Nourse)	74
— adenitis, with reference to mouth infection (F. D. Donoghue)	226
CHAPPELL (W. F.), large tumour of the laryngo-pharynx	337
CHAVANNE (F.) (Lyons), pain in the frontal sinus due to hysteria	140
CHEATLE (Arthur H.), chronic middle-ear suppuration	152, 223
— surgical anatomy of the temporal bone from birth to adult life	419
— infantile types of mastoid	256
CHERVIN (Dr.), the utility of oto-rhinoscopy in cleft palate	471
CHEVAL (M.), wound of the meninges	547
CHEVAL (V.), wound of meninges, the brain, etc.	662
Cholesteatoma of the mastoid (R. Lake)	23
Chronic frontal sinus disease (Stuart Low)	355
— suppurative otitis media, a fatal case of (James Donelan)	103
— suppuration of the middle ear, the cure of (Mr. Charles Heath)	63
CIOCIOLI and MARTUSCELLI, on the late effects of tracheotomy	657
Cleft palate, modern methods in the repair of (John B. Roberts)	597
— operation for (G. Hudson-Makuen)	597
Clinical Society of the Brussels Hospital, wound of the meninges (M. Cheval)	547
COAKLEY (Dr. Cornelius G.), removal of papillomata of larynx	409
Cocaine, disagreeable symptoms following local use of (W. G. B. Harland)	237
— (Charles M. Pratt)	237
COFFIN (Rockwell A.), new operation for correction of the nasal septum	228
COHN (G.), nasal tuberculosis	226
COLLIER (Mayo), laryngeal tuberculosis	68
— double abductor paresis	69
— epithelioma of floor of mouth	78

	PAGE
COLLIER (Mayo), bilateral abductor paresis	81
——— tubercle of the larynx	187
Columella, destruction of the (Dr. Donelan)	213
Contra-lateral disturbances of vision and blindness of nasal origin, the aetiology of (Professor Dr. A. Onodi)	382
COOLIDGE (A.), jun., vocal nodules in children	317, 474
Correction on the review of this Association	405
Corrosion casts (metallic) of the temporal bone (H. F. Mole)	95
COURTADE, soothing pain in tonsillitis	156
COWEN (New York), brain-abscess	146
CRAWFORD (G. R.), abscess of the larynx	230
Crico-arytenoid arthritis (G. Dupond)	656
Crico-thyrotomy without anaesthesia (Luc)	161
CRUET (Dr.), maladies de la Bouche	420
Cut throat, accidental (Dr. Robert Woods)	357
Cyst, dermoid, of base of nose (H. Burger)	140
——— in floor of right nasal passage (Dr. J. B. Ball)	49
——— in arytaeno-epiglottidean fold (Dr. Cathcart)	55
——— in floor of nose (Mr. C. A. B. Horsford)	114
——— (mucous) of the frontal sinus (Sprenger)	203
Cysts of the larynx (E. Glas)	228
Cystoma of larynx (Dr. Jobson Horne)	115
DANIEL (Patrick), the common-sense of voice-development	91
DAVIS (H. J.), fissures on the tongue	164
——— papilloma of the larynx	165
——— aphemia	210
——— subacute laryngitis with ulceration	247
DAVIS (J. T.), ozaena for diagnosis	52
——— laryngeal neoplasm for diagnosis	53
Deaf, educational treatment of the (James Kerr Love)	428
Deafness, periodical central; death (Watson Williams)	34
——— chronic progressive (Dr. August Lucae)	665
——— of newborn child (von W. Koellreutter)	367
——— of syphilitic origin (Viollet)	663
Dechlorisation, noises in the ear and (M. Lermoyez)	236
DENKER (A.) (Erlangen), operative treatment of malignant nasal growths	416
DE PONTHIERE (L.), sarcoma of the ethmoid	655
DIONISIO (Ign.) (Torino), ozaena; suppuration of middle ear; chronic pharyngitis	477
Diphtheria, prophylaxis of post-operative (H. A. Barnes)	316
DIRIART and ROZIER, thyroid and trachea	142
Displacement of the larynx (H. Wichern)	142
DONELAN (James), chronic suppurative otitis media	103
——— left otitis media	221
——— marked hypertrophy	241, 269
——— acute left mastoiditis	271
——— destruction of the columella and portion of the nasal septum	213
DONOGHUE (F. D.), cervical adenitis, with reference to mouth infection	226
DOWNIE (Walker), sarcoma of the nose	653
DUPOND (G.), double crico-arytenoid arthritis	656
DUPUY (Homer), successes and failure in intubation	229
——— laryngeal tuberculosis	364
Ear, diseases of the (Hunter Tod)	666
EINHORN (A.) (Berlin), a remedial inhalation for asthma	474
“Elixoid,” Burroughs Welcome & Co.	280

	PAGE
Endo-laryngeal growth (StClair Thomson)	174
— malignant (StClair Thomson)	209
Endothelioma of the throat (J. A. Logan)	201
— of the maxillary sinus (J. Broeckaert)	655
Endotheliomata and other tumours of the neck (Wyatt Wingrave)	41
— of the interior of the nose (E. Althoff)	230
Endotheliomatous infiltration and ulceration on the posterior wall of the lower pharynx (Dundas Grant)	254
Enucleation of enlarged tonsils (A. Bronner)	249
Epiglottis, cystoma of the (W. Jobson Horne)	245
Epistaxis, slight, without visible lesion in the nose (Castex)	159
Epithelioma of the tongue and larynx (E. Roughton)	56
— of the floor of mouth (Mayo Collier)	78
— of the tympanic mucosa (W. Milligan)	105
— of the larynx (S. Mority)	344
— — — (Jobson Horne)	354
— — — (Seanes Spicer)	60, 118
— — — (Zubet-Barbon)	157
— — — (Henry L. Swain)	463
— — — (Clement F. Thiesen)	465
— — — pathological report on Dr. Abercrombie's case of (Wyatt Wingrave)	184
— — — on the base of the tongue (Castex)	159
— — — of the tonsil (A. Wylie)	66
— — — (Harold Barwell)	134
ESCAT (E.), uses and value of galvano-cautery in various forms of laryngeal tuberculosis	229
Ethmoid, sarcoma of the (L. De Ponthiere)	655
Ethmoidal frontal cells shown in dissected skulls (StClair Thomson)	349
— sinusitis (Verniewe, Ghent)	417
Exhibits at Exeter (Mayer and Meltzer)	481
— (Maw, Son and Sons)	482
— (Parke, Davis and Co.)	482
Exostosis of the frontal sinus (W. Milligan)	170
— of the external auditory meatus (P. McBride)	243
Extensive submucous resection for septal deflection under local anaesthesia	346
Eye-grounds in otitic disease of the brain (Takabatake)	608
Facial paralysis (Castex)	159
— (Lermoyez)	160
Facio-scapulo-humeral myopathy of nasal predominance (Dr. Pasquier)	137
Farlow (Dr. John W.), spasm of the oesophagus	412
Faucial tonsils (John Hunter)	225
Fibro-lipoma (congenital) of the palatal tonsil (Zoliki, Strassburg)	138
Fibroma of larynx (Dr. G. C. Cathcart)	121
Fish (Henry Manning), thirty-six successive cases of optic neuritis	442, 530, 619
Fissures on the tongue (H. J. Davis)	164
Fixation of left vocal cord (Dr. Furniss Potter)	122
— of the left cord from tuberculoma (Chichele Nourse)	187
— — — pathological report on (Wyatt Wingrave)	188
Flockhart, Duncan and Co., therapeutic preparations	484
Fold sometimes to be found in front of the posterior nasal opening (W. G. Porter)	17
Forceps for removal of new growths in larynx, etc.	353
— laryngeal (Dr. StClair Thomson)	353
Foreign bodies in upper respiratory and digestive tracks (Dr. John MacIntyre)	390
— in the respiratory tract and oesophagus (Gustav Killian)	643

	PAGE
Formidine (Parke, Davis and Co.)	280
FOURNIÉ, pharyngeal pulse	157
Fracture of the base (W. Lange)	546
FREER (Otto T.), new method of removing adenoids through the nasal fossae	226
FREYTAG (R.), labyrinthine diplacusis	368
FRIEDMAN (C.), objective tinnitus	235
Frontal sinus, pain in the, due to hysteria (F. Chavanne, Lyons)	140
disease (Dr. E. A. Peters)	177
(Maljutin, G. W.)	278
suppuration (Dr. Herbert Tilley)	62
chronic suppuration of the (Kramm)	227
entrance of fluids into the, during forced irrigation of the antrum (Menzel)	655
sinusitis, chronic (Mr. Stuart Low)	178
(Mr. Stuart Low)	358
FROSE (A.), treatment of middle-ear suppuration	659
FURET, tuberculous laryngitis	157
Furunculosis, aural (Seligmann, Frankfort)	146
Galvano-cautery, uses and value of (E. Escat)	229
Gastric disturbance due to disease of the frontal sinus (J. A. Storck)	203
GAVELLO (G.), surgical treatment of maxillary sinusitis by the nasal route	606
German Otological Society: the sixteenth meeting	206
Glands of the floor of the mouth, throat symptoms caused by disease of the (Kretschmann)	137
GLAS (E.), cysts of the larynx	228
Glasgow Royal Infirmary: post-graduate courses	536
GLEGG (Wilfred), correspondence <i>re</i> Dr. Percival J. Hay	484
GLEITSMANN (Dr. J. W.) (New York), tuberculosis of the accessory sinuses of the nose	406
Goitre, removal of, from the tip of the tongue (C. Goris)	225
GOLDSMITH (Perry G.), primary bilateral mastoiditis	660
acute suppuration of the mastoid	661
GOODALE (J. W.), examination of throat in chronic systemic infections	138
GOODALE (Dr. J. L.), systemic infection through the tonsillar ring	457
GORIS (C.), removal of a goitre from the tip of the tongue	225
GRANT (Dundas): appointment	91
review of the history of the British Laryngological, Rhinological, and Otological Association	318
a correction	405
tumour of the pharyngo-glossus	356
retrospect of otology	10
extreme weakness of voice in a male	132
lympho-sarcoma of base of tongue	133
pharyngo-keratosis	215
immobility of the left vocal cord	217
lupus of the larynx	253
endotheliomatous infiltration and ulceration of the posterior wall of the lower pharynx	254
naevus of the pharynx	51
ulceration of right half of larynx	130
GRAY (Albert A.), distribution of pigment in the labyrinth of vertebrates	22
labyrinth of animals	368
GRAYSON (C. P.), the diseases of the nose, throat, and ear	92
GREEN (Dr. Stanley), sarcoma of tonsil	343
GREENE (D. C.), cancer of the larynx	415
Growth on left vocal cord (Mr. de Santi)	248
removed from the larynx (H. Lambert Lack)	254
GRUNBERG (Karl), internal administration of potassium iodide	610

	PAGE
GUISEZ (M.), congenital stenosis	156
— three patients operated on for old-standing fronto-ethmoidal sinusitis	158
GUMMA of larynx (Mr. Harold Barwell)	72, 84
— of external surface of left ala nasi (Mr. Herbert Tilley)	356
Hæmatoma of the auricle (Dr. Castex)	470
Hæmorrhage, morning buccal (Dr. Koenig)	472
HAMM (A.) and TORHORST (H.) (Strassburg), keratosis pharyngis	362
HAMMERSCHLAG (Victor), disturbance of speech in childhood	231
— multiple neurofibromata	467
HARLAND (W. G. B.), disagreeable symptoms following local use of cocaine	237
HARMON-SMITH (New York), radical operation for otitis media suppurativa	146
HASELTINE (Chicago), the septum nasi: a comparative study	653
HAY (Dr. Percival J.), correspondence on (Wilfred Glegg)	484
Hearing, bilateral cerebral disturbance of, with aphasia (Boenninghaus).	236
— preservation of (S. Bryant)	279
— conservation of, in operations on the mastoid (W. Sohier Bryant)	204
HEATH (Charles), ten cases illustrating the cure of chronic suppuration of the middle ear	63
— nasal polypus of twenty years' duration	75
— further series of cases illustrating the cure of chronic suppuration of the middle ear	76
HECHINGER (Julius), noma of the ear	547
HEIMENDINGER (A.) (Strassburg), pathological anatomy of maxillary antrum	364
Herpes zoster auris (D. G. Vail)	236
Herpetic inflammation of the geniculate ganglion (J. Ramsay Hunt)	657
HILL (Wm.), operative treatment in middle-ear disease	502
— discussion on	537
HINSBERG (V.) (Breslau), labyrinthine suppuration	147
— purulent inflammation of the labyrinth	664
HIRSCHLAND (L.), foreign body in left bronchus	232
HOELSCHER, purulent otitis	235
HOLMES (E. M.), retropharyngeal abscess	201
HORNE (Jobson), thoracic lympho-sarcoma	218
— epithelioma of larynx	354
— cystoma of larynx	115
— of the epiglottis	245
— the channels of infection in tuberculosis	281
— forceps for removal of new growths in larynx, etc.	353
— tumours of the ventricles of Morgagni	247
— differential diagnosis of tuberculosis, syphilis, and malignant disease of the larynx.	561
HORSFORD (C. A. B.), cyst in the floor of the nose	114
— tonsillar disease	119
Hospital for Diseases of the Throat, Golden Square, W.	423
— Central London Throat and Ear, King's Cross	424
— The Metropolitan Ear, Nose, and Throat, Grafton Street, W.	425
HUBBARD (Dr. Thomas), a problem in asepsis in the routine office work of the laryngologist	322
HUDSON (Makuen G.), operation for cleft palate	598
HUNT (Dr. J. Middlemass), lipoma of the trachea	181
HUNT (J. Ramsay), herpetic inflammation of the geniculate ganglion	657
HUNTER (John), faecal tonsils	225
Hypertrophy, marked, of the pharyngeal extremities of the Eustachian tubes (James Donelan)	241, 269

	PAGE
ILA (de Angelis), phlegmonous tonsillitis and its mode of formation	544
Inferior turbinate, histology of (I. Kubo)	201
— human (I. Kubo)	202
INGALS (Dr. E. Fletcher), carcinoma of the larynx	462
Instruments (demonstration of), glass syringe for irrigation of the ears (M. Bosviel)	156
— forceps for compressing the tonsil (Molinié and Vacher)	156
— surgical (Mayer and Meltzer)	238
— (Parke Davis and Co.)	239
International Laryngo-Rhinological Congress	205
— Medical Congress	206
— Otological Congress	206
Intra-nasal operation, fatal result from (G. L. Tobey, jun.)	363
Intra-tracheal medication (Edward C. Watson)	232
Intubation, successes and failures in (Homer Dupuy)	229
 JABOULAY (M.), a tracheotomy cannula in the right bronchus	143
JACK and VERHOEFF, a case of chronic otitis media	658
JACKSON (Dr. Chevalier), tracheo-bronchoscopy, reports of cases	613
Jacobson's organ, persistent (Dr. Lambert Lack)	56
JOHNSTON (R. H.), the treatment of chronic antrum disease	545
JONES (H. E.), tumour of the pinna	21
JOUTY (Antoine), suppurative thrombo-phlebitis of lateral sinus and bulb of jugular	366
Jugular: surgical opening of the bulb of the jugular (Dr. Luc)	135
 KELSON (W. H.), tumour of palate	115
— ulceration of epiglottis and base of tongue	116
— abnormality of neck	130
— tubercular disease of the larynx	189
KENNON (B. R.) (Norfolk, Va.), sinus and jugular thrombosis	146
KEPPLER (Wilhelm), treatment of purulent otitis by congestive hyperaemia	234
Keratosis pharyngis (A. Hamm and H. Torhorst)	362
KILLIAN's frontal sinus operation (H. P. Mosher, Boston)	139
KILLIAN (Gustav), the treatment of foreign bodies in the respiratory tract and oesophagus	643
KISHI (K.) (Formosa), otitic dyspepsia in infants	418
KNAPP (A.) (New York), infective sinus thrombosis	88
— the radical operation in purulent otitis	145
— primary cavernous sinus thrombosis	608
— otitic meningitis	657
KNIGHT (Charles H.), bilateral abductor paralysis of the larynx	456
— correspondence <i>re</i> error on page 348—of text-book on diseases of the nose and throat	484
KOELLREUTTER (von W.), deafness of new-born child	367
KOENIG (M.), paraffin prothesis	331
KOERNER (O.), oto-sclerosis in the light of heredity	235
KOPETSKY (New York), acute purulent otitis and mastoiditis	89
KRAMM, intra-nasal treatment in chronic suppuration of the frontal sinus and the ethmoidal and sphenoidal cells	227
KRETSCHMANN (Magdeburg), throat symptoms caused by disease of the glands of the floor of the mouth	137
KUBO (I.), histology of inferior turbinate	201
— human inferior turbinate	202
— lobular hypertrophy of the turbinates	277
KUTTNER (A.) (Berlin): does the recurrent laryngeal nerve in man contain sensory fibres?	415

	PAGE
Labyrinth of animals (Dr. Albert A. Gray)	368
Labyrinthine deafness (Manasse) (Strasburg)	147
— suppuration (V. Hinsberg) (Breslau)	147
— diplacusis (R. Freytag)	368
— capsule, progressive spongification of the (N. H. Pierce)	663
LACK (Lambert), persistent Jacobson's organ	56
— diseases of the nose and its accessory sinuses	370
— growth removed from the larynx	254
LACROIX (Dr. P.), précis de laryngologie clinique et thérapeutique	238
LAKE (R.), extensive cholesteatoma of the mastoid	23
— and BOWEN (W. H.), malignant disease of the external meatus	22
— electric oto-masseur	259
LANGE (W.), fracture of the base	546
— fracture of the basis crani	609
LANGMAID (Dr. Samuel W.) (Boston), massage of the pharynx	408
LANGWORTHY (H. Glover), hysterical mastoid tenderness	607
Laryngeal air sacs in man (G. Avellis)	606
— disease (? syphilitic) (Dr. J. B. Ball)	117
— (intrinsic) malignant disease, thyrotomy performed for (Dr. P. H. Abercrombie)	182
— a further case	184
— nerve, recurrent (A. Kuttner and E. Meyer)	415
— papillomata in a child (M. le Marc hadour)	329
— syphilis (J. B. Ball)	250
— tuberculosis in a girl aged thirteen (Castex)	159
— tumour (Mr. Harold Barwell)	190
— tuberculosis (Mr. Betham Robinson)	126
Laryngitis, subacute, with ulceration (H. J. Davis)	247
Laryngo-pharynx, large tumour of the (Dr. W. F. Chappell)	337
Laryngological Society of London, proceedings of	49, 111, 163, 246
Laryngologie, précis de (Dr. P. Lacroix)	238
Laryngology, retrospect of	1
Laryngoscopy, direct (Andrew Wylie)	578
Laryngotomy, preliminary (J. W. Bond)	278
— (Butlin, H. T.)	279
Larynx, shape of ventricles in the singer's larynx (G. Avellis)	88
— contusion of the (E. Wertheim)	203
— microscopic section of (Wyatt Wingrave)	249
LAURENS (Dr. G.), l'otite moyenne purulente aiguë et son traitement	369
LAURENS (Dr. Paul), spasmodyc coryza, treated by means of pollantin	135
— autoplasty for a cicatrical orifice	160
LAUZUN-BROWN, Workmen's Compensation Act, and injury to the nose	448
LAWRENCE (L. A.), abnormally short external auditory canal	29
LE BŒUF (L. G.), mutism in typhoid	35
LEE (Charles G.), extra-dural abscess	261
— otitis media chronica	262
— chronic suppurative otitis media	265
Lepto-meningitis (C. N. Spratt)	548
LERMOYEZ (M.), small crust in the olfactory slit	158
— facial paralysis	160
— noises in the ear and dechlorisation	236
Leucocyte count (Suckstorf. Hanover)	145
LEVINGER (Munich), pneumocele of the frontal sinus	416
LEWIS (R.), mastoiditis complicated by thrombosis of the left lateral petrosal and cavernous sinuses	548
LINK (G.), acute œdema of the pharynx	277
Lipoma of the trachea (Dr. J. Middlemass Hunt)	181
LOGAN (J. A.), endothelioma of the throat	201
L'otite moyenne purulente aiguë et son traitement (Dr. G. Laurens)	369
LOVE (James Kerr), educational treatment of the deaf	428

	PAGE
LOW (Stuart), tumour in soft palate	125
——— report on (Dr. Wyatt Wingrave)	126
——— frontal sinusitis	178
LOWY (Hugo), microscopic sections of nasal polypi	163
LUBET-BARBON, epithelioma of the larynx	157
LUC (Dr.), surgical opening of bulb of jugular	135
——— crico-thyrotomy, without anaesthesia	161
LUCAE (August), chronic progressive deafness	665
Lupus of palate and larynx treated with tuberculin R. (G. A. Peters)	175
——— of the larynx (Dundas Grant)	253
Lympho-sarcoma of base of tongue (Dr. Dundas Grant)	133
MACINTYRE (John), foreign bodies in the upper respiratory and digestive tracts	390
MACKENZIE (Dr. J. Nowland), true tubercular tumours of the larynx and trachea	379
MACLAREN (Roderick), the removal of enlarged tonsils	225
MAHU, spontaneous naso-labial angioma	157
Maladies de la bouche (Dr. Cruet)	420
Maladies de la voix chantée (Dr. Perretière)	371
Malignant disease of the larynx (Sir Felix Semon)	550
——— (W. Jobson Horne)	561
——— growths of the larynx (Dr. J. Solis-Cohen)	461
——— nasal growths, operative treatment of (A. Denker, Erlangen)	416
MALJUTIN (E. N.), frontal sinus disease	278
MANASSE (Strasburg), labyrinthine deafness	147
MANCIOLI (Rome), dry otitis	477
MANCIOLI (Tommaso), malattie dell'orecchio del naso e della gola	610
Manuel des maladies du tube digestif (Dr. Crnet)	420
MARC'HADOUR (M. le), extreme hypertrophy of the faucial and pharyngeal tonsils	329
——— and BRUDER (MM. le), otitis from measles	155
——— laryngeal papillomata in a child	329
MARTUSCELLI and CIOCIOLO, on the late effects of tracheotomy	657
Massage of the pharynx (Dr. Samuel W. Langmaid, Boston)	408
Mastoid, infantile types of (Arthur H. Cheatle)	256
——— operation for chronic middle-ear disease (W. Milligan)	195
——— radical (Chichele Nourse)	191
——— (Dr. Ruttin)	469
——— simple and radical (H. Neumann)	234
——— operations, prognosis of, in diabetic cases (E. L. Meierhof)	607
——— surgery	37
——— tenderness, hysterical (H. Glover Langworthy)	607
Mastoiditis, acute (L. R. Ryan)	477
——— left (James Donelan)	271
——— complicated by thrombosis (R. Lewis)	548
——— primary bilateral (Perry G. Goldsmith)	660
——— suppurative, its diagnosis and treatment (Gilbert Royce)	661
MAW, SON AND SONS, exhibits at Exeter	482
Maxillary antrum, pathological anatomy of (A. Heimendinger, Strassburg)	364
MAYER AND MELTZER, surgical instruments	238
——— exhibits at Exeter	481
MCBRIDE (P.), exostosis of the external auditory meatus	243
——— a polypoid growth	246
Meatus (external), malignant disease of the	22
Medical Graduates' College and Polyclinic, 22, Chenies Street, W.C.	426
MEIERHOF (E. L.), prognosis of mastoid operations in diabetic cases	607
Melanosis of the palate, primary (J. N. Roy)	652
Ménière's symptom complex in a hereditary deaf-mute (Dr. Ernest Urbantschitsch)	45

	PAGE
Meninges, wound of the (M. Cheval)	547, 662
Meningitis (septic) secondary to suppurative labyrinthitis (W. Milligan)	29
— fatal (H. P. Mosher)	363
— death from (H. Schwartzé)	609
MENZEL, entrance of fluids into the frontal sinus during forced irrigation of the antrum	655
MEYER (E.) (Berlin): does the recurrent laryngeal nerve in man contain sensory fibres?	415
Middle-ear disease (operative), treatment in (Wm. Hill)	502
— discussion on	537
— suppuration, implication of the chorda tympani and tympanic plexus in (Macleod Yearsley)	399
— treatment of (A. Frose)	659
MILLER (F. E.), vocal nodules	229
MILLIGAN (W.), abscess of the right frontal lobe	166
— exostosis of the frontal sinus	170
— cerebellar abscess	198
— epithelioma of the tympanic mucosa	105
— fracture of the base of the skull	273
— septic meningitis secondary to suppurative labyrinthitis	29
— squamous epithelioma	194
— attempted suicide following a mastoid operation for chronic middle-ear disease	195
— the treatment of chronic suppuration of the middle ear	486
— discussion on	537
MILLS (Westley), voice production in singing and speaking	372, 611
MOLE (H. F.), metallic corrosion casts of the temporal bone	95
MOLINIÉ and VACHER, forceps for compressing the tonsil	156
Monolateral deafness (Bezold, Munich)	89
Morbid Growths Committee, report of the	343
MORITZ (Dr. S.), epithelioma of larynx	344
MORSE (J. L.), naso-pharynx in infancy	417
MOSHER (H. P.) (Boston), Killian's frontal sinus operation	139
— fatal meningitis	363
— pre-maxillary wings and deviations of the nasal septum	602
MOUNIER (Dr.), submucous resection of the nasal septum	472
Mouth diseases in glass-blowers (M. Scheier)	605
— breathers (William Osler)	475
MUCKLESTON (H. S.), and H. S. BIRKETT, perichondritis of the larynx	656
Multiple neuro-fibromata (Dr. Hammerschlag)	467
Multi-sinusitis (Dr. StClair Thomson)	54
— ethmoids removed from, a case of (Dr. StClair Thomson)	351
Mycelial infection of a tonsil (Wyatt Wingrave)	190
Nævoid distension of bony cancelli of middle turbinal (Dr. Wyatt Wingrave)	75
Nævus of the pharynx (Dr. Dundas Grant)	51
— (Mr. Stuart-Low)	355
Naso-labial angioma, spontaneous (M. Mahn)	157
Nasal obstruction and swelling of the left cheek (Canyard)	158
— polypi, microscopic sections of (Hugo Löwy)	163
— determining cause of formation of (Eugene S. Young)	517
— septum, new operation for correction of the (Rockwell A. Coffin)	228
— straightening the (Dr. A. W. Watson)	335
— pre-maxillary wings and deviations of the (Harris P. Mosher)	602
Naso-pharyngeal and meningitis as a complication of measles (Dr. Pasquier)	472
Naso-pharynx, tuberculoma of (Dr. P. H. Abercrombie)	70
— and pharynx, diffused swelling on the posterior wall of (Castex)	159
— in infancy (J. L. Morse)	417

	PAGE
Neck, abnormality of (Dr. Kelson)	130
Neoplasm, laryngeal (Dr. H. J. Davis)	53
Nervous aphony, old (Castex)	159
NEUMANN (H.), a case with a peculiar otoscopic appearance	46
——— chronic purulent otorrhoea (pathological specimen)	47
——— simple and radical mastoid operation	234
——— post-operative perichondritis	468
——— thrombosis of the sinus	469
Nodules, vocal (F. E. Miller)	229
——— in children (A. Coolidge, jun.)	474
Noma of the ear (Julius Hechinger)	547
Nose and its accessory cavities, anatomy of (Ernst Oppikofer)	141
——— suction treatment in disease of the (Sondermann) (Dieringhausen)	142
——— and its accessory sinuses (H. Lambert Lack)	370
——— and throat, diseases of the, and their treatment (Chas. A. Parker)	370
——— foreign bodies in the nose as the result of accident (Pasch)	545
NOURSE (Chichele), retrospect of otology	10
——— malignant disease of the cervical glands and larynx	74
——— new growth in the pharynx	74
——— multiple sinusitis	85
——— cerebellar abscess, a fatal case of	110
——— cerebral abscess and meningitis	359
——— fixation of the left cord from tuberculoma of the left arytenoid region in a male	187
——— radical mastoid operation	191
——— frontal sinusitis	590
Nystagmus, severe rotary (Dr. Barany)	46
Ocular movements, reflex (Barany) (Vienna)	475
Œdema of the larynx, chronic (Dr. Scanes Spicer)	59
——— of the lower part of the forehead, etc. (Dr. Herbert Tilley)	60
——— of the pharynx, acute (G. Link)	277
Œsophagus, tuberculosi of the (v. Schroetter)	144
——— removal of foreign body from (D. D. Scannell)	232
——— spasm of the (Dr. John W. Farlow)	412
Ohrenheilkunde-Geschichte der (Dr. Adam Politzer)	477
Olfactory slit, small crust in (Leroyez)	157
ONODI (Professor Dr. A.), the etiology of the contra-lateral disturbances of vision and blindness of nasal origin	382
——— correspondence <i>re</i> this paper (William Glegg)	484
Ophthalmological manifestations of latent disease of the nose and its accessory sinuses (Dr. Francis R. Packard)	411
OPPENHEIMER (Seymour), chronic suppuration of middle ear	279
OPPIKOFER (Ernst), anatomy of the nose and its accessory cavities	141
Optic neuritis, thirty-six successive cases of (Henry Manning Fish)	442, 530, 619
OSLER (Professor William), mouth-breathers	475
Osteo-myelitis and deafness (Siebenmann)	654
Otitic brain abscesses (T. K. Sidley)	546
——— dyspepsia in infants (K. Kishi, Formosa)	418
——— meningitis (Arnold Knapp)	657
——— septic thrombosis (J. Stoddart Barr)	96
——— ——— report on (Dr. James Walker)	99
——— suppurations of the brain (Takabatake)	232
Otitis: acute purulent otitis and mastoiditis (Kopetsky, New York)	89
——— dry (Mancioli, Rome)	477
——— from measles (M. le Marc'hadour and Bruder)	155
——— interna sinistra haemorrhagica (Emil Amberg, Detroit)	144
——— media, acute suppurative (Herbert Tilley)	23
——— ——— —— purulent (Prof. D. Tanturri)	660
——— ——— —— —— chronic (Chas. G. Lee)	262

	PAGE
Otitis media, chronic suppurative (Chas. G. Lee)	265
" " " " (Jack and Verhoeff)	658
" " influenzal (Macleod Yearsley)	25
" " (left), chronic (James Donelan)	221
" " suppurativa, radical operation for (Harman-Smith, New York)	146
" " (suppurative median), attributed to the post-nasal douche	156
Otological Society of the United Kingdom, proceedings of 21, 95, 191, 221, 256	256
Otology, history of (Dr. Adam Politzer)	477
" " operative otology, surgical pathology, and treatment of diseases of the ear (C. J. Blake and H. O. Reik)	90
" " retrospect of (Dundas Grant and Chichele Nourse)	10
Oto-masseur, electric (Richard Lake)	259
Oto-rhinoscopy, the utility of, in cleft palate (Dr. Chervin)	471
Otorrhœa, chronic purulent, pathological specimen (Dr. H. Neumann)	47
Oto-sclerosis in the light of heredity (O. Koerner)	235
Otoscopic appearance, peculiar (Dr. H. Neumann)	46
Ozaena (Dr. H. J. Davis)	52
" " (Ign. Dionisio, Torino)	477
 PACKARD (Dr. Francis R.), ophthalmological manifestations of latent disease of the nose and its accessory sinuses	411
Papillomata of the larynx (Betham Robinson)	171
" " (Charles Parker)	165
" " removal of (Cornelius C. Coakley)	409
" " removed from a larynx (Herbert Tilley)	254
Paraffin prothesis (M. Koenig)	331
Paralysis, complete abductor (Dr. G. C. Cathecart)	55
" " of right half of tongue (Sir Felix Semon)	50
" " of sixth nerve (Terson, Toulouse, and A. Terson, Paris)	148
" " of the left cord (Dr. Andrew Wylie)	188
Paresis, bilateral abductor (Mayo Collier)	81
" " double abductor (Mayo Collier)	69
" " functional, of the palate (E. A. Peters)	176
Parisian Society of Laryngology, Otology, and Rhinology, Proceedings of	135, 329, 470
PARKE, DAVIS AND Co., exhibits at Exeter	482
" " " formidine"	280
" " surgical instruments	239
PARKER (Charles A.), diseases of nose and throat and their treatment	370
" " tuberculosis of the larynx	165
" " ulceration of right tonsil	134
PASCH, foreign bodies in the nose as the result of accident	545
PASQUIER (Dr.), facio-scapulo-humeral myopathy of nasal predominance	137
" " naso-pharyngeal and meningitis as a complication of measles	472
PATERSON (Dr. D. R.), foreign body removed from the left bronchus of a male	179
PERCEPIED, bilateral suppurative median otitis attributed to the post-nasal douche	156
Perforation of the soft palate (F. L. Yiegel)	225
Perichondritis, post-operative (Dr. Heinrich Neumann)	468
" " of the larynx (H. S. Birkett and H. S. Muckleston)	656
PERRETIÈRE (Dr.), maladies de la voix chantée	371
PETERS (E. A.), lupus of palate and larynx treated with tuberculin R.	175
" " functional paresis of the palate	176
" " tracheotomy for laryngeal obstruction	177
" " frontal sinus disease	177
Pharyngeal pulse (Fournie)	157
Pharyngitis, lateral (W. Uffenorde)	139
Pharyngo glossus, tumour of the (Dr. Dundas Grant)	356

	PAGE
Pharyngo-keratosis (Dr. Dundas Grant)	215
Pharynx, new growth in the (Mr. Chichele Nourse)	74
Phlegmonous tonsillitis and its mode of formation (de Angelis Ila)	544
PIERCE (N. H.), progressive spongification of the labyrinthine capsule	663
PINDER (Thos. H.), cerebral abscess	244
Pinna, tumour of the (H. E. Jones)	21
Plastic operation for retro-auricular fistula (Dr. Ernst Urbantschitsch)	467
Pneumocele of the frontal sinus (Levinger, Müncher)	416
Pneumo-massage, the value of, in affections of the middle ear	510
POLITZER (Professor), an anatomical preparation of a tympanic membrane	
from an unknown patient	46
— presentation and address to	149
— presentation to	208
POLITZER (Dr. Adam), geschichte der ohrenheilkunde	477
Polyneuritis, acute cerebral (S. Schoenborn)	607
Polypoid growth (Dr. P. McBride)	246
Polypus, nasal, twenty years' duration (Mr. Charles Heath)	75
— large, which completely obliterated the right choana in a young man	159
PORTER (W. G.), fold sometimes to be found in front of the posterior nasal opening	17
Postgraduate College, West London	427
Potassium iodide, internal administration of (Dr. Carl Grünberg)	610
POTTER (Dr. Furniss), fixation of left vocal cord	122
— tumour of nasal septum	124, 181
POWELL (Dr. Fitzgerald), sarcoma of the naso-pharynx	250
POWERS (G. H.), technique of submucous resection of nasal septum	364
Practical medical Series (Drs. Casey, A. Wood, Albert H. Andrews, and Gustavus P. Head)	372
PRATT (Charles M.), cocaine	237
Presentation to Professor Politzer	208
Prolapse, so-called, of the ventricle of Morgagni (StClair Thomson)	174
Pulmonary thrombosis, death from (Brandegee, New York)	146
Purulent inflammation of the labyrinth (V. Hinsberg)	664
— otitis (Hoelscher)	235
— — — treatment of, by congestive hyperæmia (Wilhelm Keppler)	234
Pyocyanous perichondritis, post-operative (Sarai, Tatsusaburo, Japan)	145
Radical operation in purulent otitis (A. Knapp, New York)	145
RANDALL (A.), Dionn in chronic catarrhal deafness	548
RAOULT (A.) and PILLEMONT (P.), use of alypin	237
RAWLING (L. B.), cerebellar abscess	236
Recurrent middle-ear suppuration (Bryant, New York)	88
REIK (H. O.) and BLAKE (C. J.), operative otology, surgical pathology, and treatment of diseases of the ear	90
Respiratory and digestive tracts, foreign bodies in upper (John Macintyre)	390
Retropharyngeal abscess (E. M. Holmes)	201
Rhinology, Laryngology, and Otology, post-graduate teaching in	423
Rhinology, retrospect of	6
Rhino-scleroma of the naso-pharynx (StClair Thomson)	172
RICHARDS (Dr. George L.), removal of adenoids	333
ROALDES (Dr. A. W. de), an address by	331
ROBERTS (Dr. John B.), modern methods in the repair of cleft palate	597
ROBINSON (Betham), laryngeal tuberculosis	126
— extensive papillomata of larynx	171
— adherent soft palate	351
ROUGHTON (E.), epithelioma of the tongue and larynx	57
ROY (J. N.), vaseline oil in the dressing of the radical mastoid operation	585
— primary melanosis of the palate	652
Royal Ear Hospital	427

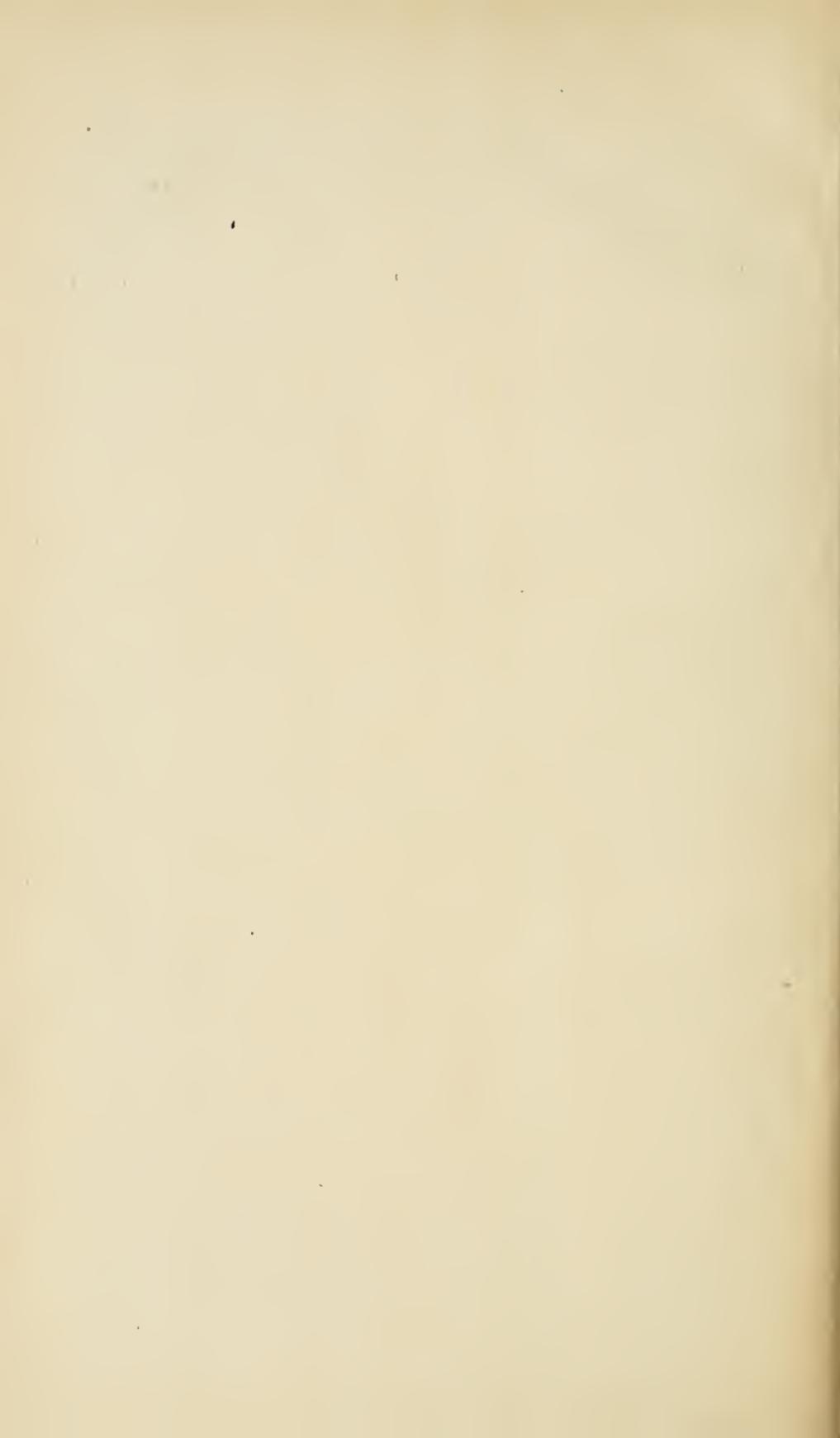
	PAGE
Royal Society of Medicine	421
ROYCE (Gilbert), suppurative mastoiditis, its diagnosis and treatment	661
RUDLOFF (P.) (Wiesbaden), course of the sigmoid sinus in child's skull	144
RUTTIN (Dr.), radical mastoid operation	469
RYAN (L. R.), acute mastoiditis	477
 SANTI (de), tertiary syphilitic laryngitis	116
——— growth on left vocal cord	248
SARAI, TATSUSABURO (Japan), pyocyanous perichondritis, post operative	145
Sarcoma of the middle ear (Dr. E. Botella)	660
——— of the naso-pharynx (Dr. Fitzgerald Powell)	250
——— of the nose (Walker Downie)	653
——— of the pharynx (Dr. Clement F. Theisen)	466
——— of tonsil (Dr. Stanley Green)	343
SCANNELL (D. D.), removal of foreign body from oesophagus	232
SCHAEFER (F.) (Munich), remedial inhalation for asthma	474
SCHEIER (M.), diseases of the mouth in glass-blowers	605
SCHOENBORN (S.), acute cerebral polyneuritis	607
School children, aural and nasal examination of (D. H. Walker)	144
——— Hygiene, The Second International Congress of (Macleod Yearsley)	451
SCHROETTER (v.) (Vienna), tuberculosis of oesophagus	144
SCHWARTZ (H.), death from meningitis	609
SELIGMANN (Frankfort), aural furunculosis	146
Semi-circular canal, horizontal (B. von Török)	476
SEMON (Sir Felix), paralysis of right half of tongue	50
——— differential diagnosis of tuberculosis, syphilis, and malignant disease of the larynx	550
Septum nasi, a comparative study (Haseltine)	653
SIDLEY (T. K.), otitic brain abscesses	546
SIEBENMANN, osteo-myelitis and deafness	654
Sigmoid sinus, course of, in child's skull (P. Rudloff, Wiesbaden)	144
Sinus and jugular thrombosis (B. R. Kennon, Norfolk, Va.)	146
——— suppuration, radical operation for (Dr. Watson Williams)	345
——— thrombosis (infective) (A. Knapp, New York)	88
——— primary cavernous (A. Knapp)	608
——— lateral, non-interference with the thrombus in cases of (F. Voss)	545
Sinusitis, maxillary (G. Gavello)	606
——— fronto-ethmoidal (Suissey)	158
——— frontal (Chichele Nourse)	590
——— multiple (Chichele Nourse)	85
Skull, fracture of the base of the (W. Milligan)	273
SMITH (S. MacCuen), our faulty methods of brain localisation in intracranial lesions complicating aural diseases	664
SMURTHWAITE (Dr. H.), extensive submucous resection for septal deflection under local anaesthesia	346
SOLIS-COHEN (Dr. J.), malignant growths of the larynx	461
SOMERS (L. S.), the aural and laryngeal complications of typhoid fever	545
SONDERMANN (Dieringhausen), suction treatment in diseases of the nose	142
Sound conduction, theory of (Boenninghaus)	607
Sound-conducting apparatus (Zimmermann)	89
Spasmodic coryza, treated by means of pollantin (Dr. Paul Laurens)	135
Speech, disturbance of, in childhood (Victor Hammerschlag)	231
SPICER (Dr. Scanes), achondroplasia in a child	57
——— chronic oedema of the larynx	59
——— epithelioma of the larynx	60, 118
——— inoperable cancer of the fauces, the pharynx, the tongue, and the cervical glands	180
——— cancer of larynx and pharynx	180

	PAGE
Spirochaetae, the presence of, and other throat organisms in discharges from the middle ear (Wyatt Wingrave)	403
Spirographs or nasal "breath pictures" (Wyatt Wingrave)	92
Spittoon as a sialogogue (Price Brown)	406
SPRAGUE (F. B.), observations in 1000 adenoid operations	35
SPRATT (C. N.), lepto-meningitis	548
SPRENGER, mucous cyst of the frontal sinus	203
Squamous epithelioma (W. Milligan)	194
Stapes, removal of, exceptionally good hearing after (Hunter Tod)	33
Stenosis, congenital, impermeable by ordinary means, but operated and cured under oesophagoscopy (M. Guisez)	156
——— severe subglottic (G. Strazza)	473
Stereoscopic skiagrams (Dr. Watson Williams)	112
STORCK (J. A.), gastric disturbance due to disease of the frontal sinus	203
STRAZZA (G.) (Genoa), severe subglottic stenosis	473
STREITZ, angioma of the nose	140
STUART-Low (Mr.), naevus of pharynx	355
——— chronic frontal sinus disease	355
——— frontal sinusitis	358
Stuttering cured by operation (Dr. Boisveil)	470
Submucous resection of septum (Dr. StClair Thomson)	112
——— of the nasal septum (Dr. Mounier)	472
——— of septum (Mr. Herbert Tilley)	121
SUCKSTORFF (Hanover), leucocyte count	145
Suppuration, acute, of the middle ear (W. S. Syme)	582
——— chronic, of the middle ear (Mr. Charles Heath)	76
——— ——— (Arthur H. Cheatle)	152, 223
——— ——— (Seymour Oppenheimer)	279
——— recurrent middle ear (Bryant)	88
——— of the middle ear, treatment of (Wm. Milligan)	486
——— discussion on this case	537
Surgery, mastoid	37
Surgical anatomy of the temporal bone from birth to adult life (Arthur Cheatle)	419
SWAIN (Dr. Henry L.), epithelioma of the larynx	463
SYME (W. S.), acute suppuration of the middle ear	582
Syphilis, differential diagnosis of (Sir Felix Semon)	561
——— (W. Jobson Horne)	549
Systemic infection through the tonsillar ring (Dr. J. L. Goodale)	457
TAKABATAKE, changes in the eye-grounds in otitic diseases of the brain	608
——— otitic suppurations of the brain	233
TANTURRI (Professor D.), grave and rapid endo-cranial complications in a case of acute purulent otitis media	660
Teaching of ear and throat classes (J. Mackenzie Booth)	93
TERSON (Toulouse) and TERSON (A.) (Paris), paralysis of sixth nerve	148
Tertiary syphilitic laryngitis (de Santi)	116
THEISEN (Clement F.), epithelioma of the larynx	465
——— sarcoma of the pharynx	466
Therapeutic preparations (Burroughs Wellcome and Co.)	483
——— (A. Wulfung and Co.)	483
——— (Duncan Flockhart and Co.)	484
——— (Parke Davis and Co.)	36
THOMSON (StClair), multi-sinusitis	54
——— submucosal resection of septum	112
——— rhino-scleroma of the naso-pharynx	172
——— endo-laryngeal growth	174
——— so-called prolapse of the ventricle of Morgagni	174
——— infiltration and ulceration of the uvula	174
——— malignant endo-laryngeal growth	209

	PAGE
THOMSON (StClair), prolapse of the ventricle of Morgagni	210
bifid growth springing from a larynx	253
extensive tuberculous laryngitis	348
ethmoidal frontal cells shown in dissected skulls	349
multi-sinusitis, ethmoids removed from	351
laryngeal forceps	353
the use of adrenalin to define new growths and infiltrations	401
Thoracic lympho-sarcoma (Jobson Horne)	218
Throat in chronic systemic infections, examination of (Dr. J. W. Goodale)	138
Thrombosis, infective sinus (Knapp)	88
of the sinus (Dr. Neumann)	469
Thyroid and trachea (Diriart and Rozier)	142
TILLEY (Herbert), acute suppurative otitis media	23
solid oedema of lower part of forehead, etc.	60
chronic frontal sinus suppuration	62
papillomata removed from a larynx	254
submucous resection of septum	121
softening gumma of external surface of left ala nasi	356
Tinnitus, objective (C. Friedmann)	235
TOBEY (G. L., jun.), intra-nasal operation, fatal result from	363
technique of submucous resection of nasal septum	364
TOD (Hunter), primary tuberculosis of the left mastoid process	31
diseases of the ear	666
exceptionally good hearing after removal of the stapes.	33
Tonsillar disease (C. A. B. Horsford)	119
Tonsils : extreme hypertrophy of the faucial and pharyngeal tonsils	329
the removal of enlarged (Roderick MacLaren)	225
TÖRÖK (B. von) (Budapest), horizontal semicircular canal	476
Tracheo-bronchoscopy, reports of cases (Chevalier Jackson)	613
Tracheotomy for laryngeal obstruction (E. A. Peters)	177
late effects of (Martuscelli and Ciociolo)	657
Tropical Medicine, London School of, Seamen's Hospital, Greenwich	426
Tubercle of the larynx (Mayo Collier)	187
Tubercular disease of the larynx (Dr. W. H. Kelson)	189
(true) tumours of the larynx and trachea (Dr. J. Nowland Mackenzie)	379
Tuberculous disease of the left tonsil (Dr. Abercrombie)	185
pathological report on (Wyatt Wingrave)	186
Tuberculoma in the larynx (Dr. Andrew Wylie)	73
of the naso-pharynx, with report on same (Dr. P. H. Abercrombie)	70
Tuberculosis, differential diagnosis of (Sir Felix Semon)	549
(W. Jobson Horne)	561
(laryngeal) (Mayo Collier)	68
(Dupuy Homer)	364
(William E. Casselberry)	473
(nasal) (G. Cohn)	226
of accessory sinuses of the nose (Dr. J. W. Gleitsmann)	406
of the larynx (Castex)	159
(Charles Parker)	165
(primary) of the left mastoid process (Hunter Tod)	31
the channels of infection in (Dr. Jobson Horne)	281
Tuberculous laryngitis (M. Furet)	157
(extensive (StClair Thomson))	348
Tumour of palate (W. H. Kelson)	115
of nasal septum (Furniss Potter)	124, 181
in soft palate (Stuart Low)	125
report on (Wyatt Wingrave)	127
Tumours: endotheliomata and other tumours of the neck (Wyatt Wingrave).	41

	PAGE
Turbinate, lobular hypertrophy of the (I. Kubo)	277
Türck-Czermak memorial festival	205
Tympanic membrane (Professor Politzer)	46
——— (Zalewski, Lemburg)	146
Typhoid, mutism in (L. G. Le Boeuf)	35
——— fever, the aural and laryngeal complications of (L. S. Somers)	545
 UFFENORDE (W.), lateral pharyngitis	139
Ulcer of the auricle (Macleod Yearsley)	21
Ulceration of interarytænoid space (Cathcart)	55
——— of epiglottis and base of tongue (W. H. Kelso)	116
——— of right half of larynx (Dundas Grant)	130
——— of right tonsil (Charles A. Parker)	134
——— (tuberculosis) of the pharynx (Mr. Harold Barwell)	83
URBANTSCHITSCH (Ernst), Ménière's symptom-complex in a hereditary deaf-mute	45
——— plastic operation for retro-auricular-fistula	467
Uvula : infiltration and ulceration of the (StClair Thomson)	174
 VAIL (D. G.), herpes zoster auris	236
Vaseline oil in the dressing of the radical mastoid operation (J. N. Roy)	585
Ventricle of Morgagni, prolapse of the (StClair Thomson)	210
——— —— tumours of the (Dr. Jobson Horne)	247
Ventricles, the shape of, in the singer's larynx (G. Avellis)	88
VERNIEUWE (Ghent), a contribution to the study of closed ethmoidal sinusitis	417
Vertebrates, demonstration of pigment in the labyrinth of (Albert A. Gray)	22
VIOLETT, deafness of syphilitic origin and treatment	663
Vocal cord, immobility of the left (Dundas Grant)	217
——— nodules in children (A. Coolidge, jun.)	317
Voice development, common-sense of (Irene San Carolo and Patrick Daniel)	91
——— extreme weakness of, in a male (Dundas Grant)	132
——— production (Westley Mills)	372
——— —— in singing and speaking (Westley Mills)	611
Voss (F.), non-interference with the thrombus in cases of lateral sinus thrombosis	545
 WALKER (D. H.), aural and nasal examinations of school children	144
WALKER (James), report on a fatal case of otitic septic thrombosis	99
WATSON (A. W.), straightening the nasal septum	335
WATSON (Edward C.), intra-tracheal medication	232
Wellcome's Photographic Exposure Record and Diary, 1907	92
WERTHEIM (E.) (Breslau), contusion of the larynx	203
WHITEHEAD (A. L.), cerebellar abscess	108
WICHERN (H.), displacement of the larynx	142
WIENER (Alfred), brain abscess	234
WILLIAMS (Dr. Watson), stereoscopic skiagrams	112
——— radical operation for sinus suppuration	345
——— periodic central deafness ; death	34
WINGRAVE (Wyatt), microscopic sections of nœvoid distension of bony cancelli of middle turbinal	75
——— squamous epithelioma of tonsil	75
——— note on endotheliomata and other tumours of the neck	41
——— spirographs or nasal breath pictures	92
——— mass removed from naso-pharynx	71
——— microscopic section of larynx	249
——— the presence of spirochætae and other throat organisms in discharges of middle ear	403

	PAGE
WINGRAVE (Wyatt), pathological report on Dr. Abercrombie's case of epithelioma of the larynx	184
— mycelial infection of a tonsil	190
— pathological report of Dr. Abercrombie's case of tonsil disease	186
— — — on Mr. Chichele Nourse's case of laryngeal disease	188
WITHINGTON (C. F.), cerebro-spinal meningitis	144
WOODS (Dr. Robert), accidental cut throat	357
Workmen's Compensation Act and injury to the nose (Dr. W. Lauzun-Brown)	448
WULFUNG and Co., therapeutic preparations	483
WYLIE (Dr. Andrew), recurrent paralysis of the left cord	188
— epithelioma of the tonsil	66
— tuberculoma in the larynx	73
— direct laryngoscopy	578
YEARSLEY (Macleod), implication of the chorda tympani and tympanic plexus in middle-ear suppuration	399
— the Second International Congress of School Hygiene	451
— ulcer of the auricle	21
— influenzal otitis media	25
— the rational treatment of adenoids	654
— the value of pneumo-massage in affections of the middle ear	510
YONGE (Eugene S.), determining cause of the formation of nasal polypi	517
ZALEWSKI (Lemburg), tympanic membrane	146
ZEBROWSKI (A.) (Warsaw), pyæmia of aural origin	367
ZIEGEL (F. L.), perforation of the soft palate	225
ZIMMERMANN (Dresden), incorrect deductions from experiments with tuning-forks on the function of the so-called sound-conducting apparatus	89
ZOLIKI (Strassburg), congenital fibro-lipoma of palatal tonsil	138



RF
1
J7
v.22

The Journal of laryngology
and ötology

GERSTS

